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The THERAPEUTIC GAZETTE

INCORPORATING

MEDICINE AND THE MEDICAL AGE

A Monthly Journal of

Practical Therapeutics

Edited by

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INCORPORATING

MEDICINE AND THE MEDICAL AGE.

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ORIGINAL COMMUNICATIONS.

THE USE OF PITUITRIN IN LABOR.[1]

BY COLLIN FOULKROD, M.D.,

Obstetrician to the Presbyterian Hospital; Demonstrator of Clinical Obstetrics in Jefferson Medical College, Philadelphia.

You will observe from the title that we are limited to the action of the drug during labor. Time does not allow for more.

I am still conservative.

It has been of especial interest to read the reports published during the past year by men who have used the drug extensively, and while their results differ from each other, and from my experience, a careful scientific conclusion cannot be reached without considering everything which is accurate in these reports.

The extent to which it has been used can best be judged by a reference to the following papers:

J. L. Bubis, M.D., in *Surgery, Gynecology and Obstetrics* for November, 1915, reaches the following conclusions: "Pituitrin is an ideal oxytocic, in that it is safe when properly used. It may be given in any stage of normal labor. Small doses influence the pains and can do very little harm, but with large doses the uterine contractions are beyond control. The infant mortality and the morbidity of the mothers are much greater when large doses are given."

In this paper he reports three cases of disaster early in the use of the drug: two children were lost and one mother torn badly.

An enthusiastic paper read by Samuel W. Bandler before the last meeting of the American Association of Obstetricians and Gynecologists, and published in the January issue of the *American Journal of Obstetrics and Diseases of Children*, gives these points:

"'When the head is well molded and fixed in and through the brim of the pelvis.' This phrase evidences my conviction as to one of the essential preliminaries which ought to obtain in primigravidæ before pituitary extract may be used by the general medical man. Whatever the stage this rule does not hold good in women who have had one or more children."

The paper closes with these words: "Practically all men are against its use in the first stage. I assert that in this stage, under proper conditions, it is of the greatest aid in furthering the progress of labor."

Four men discussed this paper; two were opposed to the drug, one having seen a rupture of the uterus from its use, and two agreed with Dr. Bandler.

Ingraham and Chase in *Colorado Medicine*, vol. xii, 1915, page 190, report their observations on the use of pituitary extract in 44 obstetrical cases.

Pituitary extract is variable in strength.

The individual patient reacts differently to the drug, and therefore caution should be your rule until thorough acquaintance with the possible dangers in each patient assures you of a safe procedure.

Pituitary extract should not be given by the nurse in the absence of the physician; it should not be given and the physician leave the patient.

The only two points upon which all observers agree are, first, that the ampoules on the market are entirely too large to be put into the hands of the general practitioner for house use, and as a standard dosage a full ampoule should never be used as one dose.

[1] Read before the Philadelphia County Medical Society, Feb. 9, 1916.

At the present we are using one-third of an ampoule, usually five minims.

Most men agree that by itself pituitrin is ineffectual in producing labor when no pains are present.

A consideration of the use of pituitrin must include the causes for which the drug is advanced:

1. Uterine inertia.
2. To control hemorrhage.
3. To differentiate true from false labor pains.
4. To induce labor.
5. To shorten the time of suffering of the woman in normal labor.
6. To enable the doctor to get to the opera, or to the medical meeting.

(6) Let us take up the last first. Is it justifiable to shorten labor, or to induce labor, that the practice of obstetrics may in any manner be regulated? For example, the medical man may have another patient needing him badly. The answer to such a question rests with each individual case, and in some instances it may be necessary to give some of the facts to the husband before doing so. If a safe drug is found I am sure that both patient and physician would be glad to use it.

(5) Is it justifiable to use pituitrin to shorten the time of suffering of a patient who is proceeding normally? From the standpoint of suffering, I am in hopes that the next paper on nitrous-oxide anesthesia will answer the query.

(4) It is the experience of most men that pituitrin by itself fails to induce labor, although Bandler advances the theory that the secretion of the pituitary gland, liberated at a certain time or working in harmony with some other glandular secretion, is the cause of labor.

One patient of my own will serve as a typical illustration:

A multipara, delivered in her first labor by the family physician of a living child, in which labor he expressed the idea that he did everything himself.

Sent to me for second labor. I found it necessary to use bag and manual dilatation to dilate a rigid cervix, and with absolute uterine inertia was compelled to do a hard forceps. This child lived about two weeks and died in convulsions.

The third pregnancy the woman went to a maternity hospital at term, not in labor; was given on two occasions each day for two days one-half ampoule of pituitrin, and no other drug or mechanical attempt to induce labor.

Her pains, not severe, lasted after each dose a varying time from two to three hours, then completely subsided. She was allowed to rest for one day to see if labor would supervene.

On the next day f℥ij of castor oil was given, and she expelled the child almost before I could reach the hospital.

If used after labor has been started with bougies or gauze then it seems to produce an effect. Such use, however, falls under the guidance of the general rules we shall deduce later.

(3) To differentiate true from false labor pains, so strongly do some men believe that pituitrin is inert when true labor is not present that they use a small dose of the drug to increase the pain, which it accomplishes in true labor, but not in false.

(2) To control hemorrhage after labor.

It has been my practice to give an oxytocic drug as soon as the placenta is out of the cervix or mayhap in the lower segment.

Because of the inability of some patients to absorb ergot from the stomach, in hospital practice I have given it hypodermically. Recently I have been impressed with the fact that even under the skin I could not say definitely there was any marked action; therefore, at least one-half of my cases have received either one-half an ampoule, or, in some instances, as much as an ampoule of pituitrin. The results have been variable. The one thing which stands out most prominently in this series of cases is that the only patient in whom I have seen in ten years a true postpartum hemorrhage was one in which pituitrin was used instead of ergot.

My conclusions are that for such a purpose pituitrin gives a more rapid series of contractions, which may soon exhaust the uterus, and that you may or may not have severe hemorrhage afterward unless the

pituitrin is reënforced by the slower long-acting drug, ergot.

Edgar in his paper on the drug in 1913, before the American Gynecological Society, reports giving it in Cæsarian section, as contrasted with ergot, and he says: "Then again the pituitary extract patient passed a large clot from the uterus twelve hours after operation, indicating at least that the action of the pituitary extract was not permanent."

(1) Uterine inertia. Just what is uterine inertia? In a hospital clinic where Cæsarian section was applied as the cure for those cases in which the force of the uterine contractions was not sufficient to engage the head, I was allowed the privilege of examining the uteri of such cases as needed hysterectomy. I was astonished at the unsuspected cases of fibroid uteri and of another condition which we came to call fibrosis of the uterus, in which concealed and incipient fibroids were the cause of the inability to secure good muscular force.

If this in an unknown percentage of cases is the cause of uterine inertia, are we justified in using pituitrin as an oxytocic? I am sure my judgment is against such a measure whether the head is in the pelvis or not.

Uterine inertia due to toxemia of the mother or death of fetus *in utero*. Here again we are unable to control the severity of the contraction after it has left our hands, and I have seen such a uterus rupture upon the slightest provocation.

In uterine inertia due to a tired muscle after a sturdy long first stage, when the contractions have been good, if a complete rest is secured before giving and the head out of the cervix in the pelvis, if ether and forceps are decried by the family, pituitrin may be used cautiously.

Where the uterus gives evidence of beginning to tire out and the exhaustion depicted above has not been reached, and the same situation exists as to the presenting part and the cervix, then small doses of pituitrin may be tried.

My position and conclusions are then practically the same as deduced by Edgar in 1913 and presented in his paper to the American Gynecological Society that year.

Pituitrin must not be used unless the presenting part is definitely engaged in the pelvis and the largest diameter has passed through the plane of the inlet, and then only if the outlet has been carefully measured for any contraction of the transverse diameter. This relates to multiparæ as well as primiparæ. It has been our experience that after several normal labors a woman may develop a child too large to pass through a normal pelvis.

I consider pituitrin in the same class as ergot, and as at present going through the same class of experiments as ergot did before it came to have a settled definite use.

In common with other men I have seen one-half an ampoule give such a tetanic contraction of the uterus that I feared rupture, or if not that, then death of the fetus from contraction of the placental site.

I have seen severe shock from one ampoule of pituitrin: in one instance of a multipara, with the head in the pelvis out of the cervix, the shock was so pronounced that labor was set aside entirely until I relieved her with forceps at the end of two hours, fearing for the child.

The dangers to the child must not be minimized; they seem to come from the secondary action through tetanic contractions more vigorous or more prolonged than nature intended, cutting off the normal circulation of the fetus through some interference at the placental site.

It is yet to be proven that pituitrin is any safer than ergot used in the same proportionate scale of dosage.

4005 Chestnut Street.

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THE PREVALENCE OF SYPHILIS.

BY EDWARD B. VEDDER, M.D.,
Captain Medical Corps, U. S. Army.

It should be unnecessary to emphasize the importance of determining the prevalence of syphilis. At the present day syphilis is very generally accepted as the real cause of certain conditions such as paresis, locomotor ataxia, and aneurism of the aorta, and as the probable cause of a great variety of cardiac, circulatory, and other conditions whose etiology has hitherto been somewhat vague. The determination of the prevalence of syphilis therefore becomes a matter of vital interest to every practical physician and surgeon, since the knowledge so obtained will aid in the elucidation of the problems which he meets in his daily practice. Furthermore, if syphilis is ever to be brought under sanitary control like other infectious diseases, the first requisite is that we should know the exact incidence of the disease.

The writer has been able to make an investigation into the prevalence of syphilis among the men of the United States army, from which it is believed certain deductions as to the prevalence of syphilis among certain parts of the civil population may be drawn. The results of this investigation have been published as Bulletin No. 8, War Department, Office of the Surgeon-General, entitled "The Prevalence of Syphilis in the Army." An endeavor will be made here to present the results of this investigation in condensed form, but laying particular stress upon the method and reasoning employed in estimating the prevalence of syphilis in certain groups of the civil population.

The Method Employed.—The following groups were studied: (1) Those men just entering the service. (2) Those men who had been in the service some time. (3) Those men who had recently left the service.

The study of the group of men just entering the service is most important from the view-point of this paper, and is the only group considered here because it is from this group that the conclusions as to the prevalence of syphilis in civil life are drawn. This group consisted of 1019 newly accepted recruits who become the enlisted men in the army, and 621 cadets at West Point who become commissioned officers. In the case of these recruits and cadets, no clinical evidence as to the existence of syphilis was obtainable, and the prevalence of syphilis is estimated on the basis of the Wassermann survey alone. Approximately half of the recruits came from the Middle West and were sent to Columbus Barracks, Columbus, Ohio, and half from the East and were sent to Fort Slocum, New York. Blood specimens were taken from all newly accepted recruits at these points without selection, and a Wassermann was performed. With regard to the cadets, a Wassermann reaction was performed on every cadet at West Point.

The Interpretation of the Wassermann Reaction in this Work.—The two plus system of readings was used. All double plus cases were counted as undoubted syphilitics, all plus reactions were counted as probable syphilitics, and the total of the known syphilitics and double plus and plus cases was used as the estimate of probable syphilitics. All of these figures were reduced to a percentage basis with the total number of men examined.

This method is considered justifiable and even conservative. For it is well known that when the Wassermann reaction is applied to all classes of syphilitics, a large percentage will give a negative or plus minus reaction. This is due to the fact that the Wassermann is frequently negative in primary, tertiary, and so-called latent cases. The results obtained by this method are therefore an underestimate rather than an overestimate of the actual prevalence of the disease, if the results of the Wassermann are accepted. All those who believe in the reliability of the Wassermann reaction when properly performed and interpreted will believe that the positive results so obtained afford an indica-

tion of the prevalence of syphilis in the men examined. Those who do not so believe will not accept my statistics. I cannot discuss the value of the Wassermann reaction in a paper of this length, and can only state that the longer the Wassermann reaction is used, and the more accurately its findings are checked with the clinical condition, the stronger becomes our faith in the findings of the positive Wassermann as an indication of syphilitic infection.

The results obtained by this investigation may be tabulated as follows:

Survey.	Total examined.	Known syphilitics, per cent.	++ Wassermann, per cent.	Undoubted syphilitics, per cent.	+ Wassermann, per cent.	Estimate of total number probably syphilitic.
Recruits	1019	0	7.75	7.75	9.02	16.77
Cadets	621	0	2.57	2.57	2.89	5.46
White enlisted men	1577	3.44	4.77	8.21	7.87	16.08
Colored enlisted men	1472	1.08	21.80	22.21	13.11	36.00
Porto Rico regiment	531	13.55	28.81	42.37	13.55	55.93
Military convicts	1145	6.48	9.50	15.98	5.67	21.65
Insane soldiers	567	3.51	8.29	11.80	7 41	19.21
Tuberculous soldiers	229	7 56	15 72	23.28	15.72	39.00
Soldiers' Home*	1171	11.62	13.40	25.02	9.73	34.75

*These figures do not include the results of the luetin examination.

From these figures the following conclusions were drawn as to the prevalence of syphilis in the civil population:

1. We may estimate that about 20 per cent of the young adult male population, of the class from which the army is recruited, are infected with syphilis.

2. We may estimate that about 5 per cent of the young men in our colleges are syphilitic.

3. This study confirms observations that have already been published indicating that syphilis is so prevalent among negroes that it is possibly the greatest single factor in the production of disability and high mortality rates among the race.

4. The high percentage of syphilis among Porto Rican soldiers indicates that syphilis may be one of the important causes of disability among native Porto Ricans.

5. Since syphilitic infection is so common, is productive of so much disability, and has so far entirely evaded sanitary control, it is believed that syphilis is a greater menace to the public health than any other single infectious disease, not even excepting tuberculosis.

DISCUSSION OF CONCLUSIONS.

Inasmuch as the estimate of the prevalence of syphilis among the accepted recruits was only 16.77 per cent, it may be asked on what is based the estimate of 20 per cent for the young adult male population of the class from which the army is recruited. It must be remembered that these accepted recruits are picked men, having passed two physical examinations, which were so severe that approximately 83 per cent of all applicants were rejected. There is statistical evidence to the effect that of these men rejected, approximately 2.3 per cent were rejected for manifest syphilis. The accepted recruits among whom the prevalence of syphilis is estimated to be 16.77 per cent are therefore the cream of the applicants. None of these men were syphilitic so far as could be determined by a physical examination, while among those rejected between 2 and 3 per cent showed manifest lesions of syphilis, and as a group was generally inferior physically. It therefore appears conservative to estimate that 20 per cent of the young civilian males who apply for enlistment in the army are infected with syphilis.

According to the Wassermann survey on the cadets at West Point, we may estimate that from 2 to 5 per cent are syphilitic, although there were no cases at all presenting clinical evidences of syphilis. I am well aware that many will say that under these circumstances so much weight should not be attached to a positive Wassermann, and that this estimate is therefore an exaggeration of the real facts. I have shown that as the Wassermann reaction is performed in this laboratory, the percentage of false positives that may be expected in work of this character is approximately 0.5. But let us assume that the error is much greater, and that as much as one or two per cent of these reactions are false. The incidence of

syphilis at West Point would then be reduced from 1 to 3 per cent. But here again it must be remembered that the cadets are picked men; that they have passed a physical examination, which, in view of the fact that these young men are to become officers, is much more searching than that to which recruits are subjected. Further, it must be remembered that these men, from the time they enter West Point, are under the strictest military discipline and that they seldom leave the reservation. The young men from any of our civil colleges cannot compare physically with cadets at West Point for the obvious reason that no selection based on a physical examination is practiced, and they are subject to no such discipline. All who have known such students know that there is a certain percentage of them who indulge either occasionally or regularly in illicit intercourse. Under these circumstances it is certainly fair to assume that the percentage of syphilis among these college students is higher than is the case for the cadets. If the cadets at the lowest estimate have only 1 to 2 per cent of syphilitics, it is certainly fair to assume a prevalence of 5 per cent among college students. As I am sure the figures for the cadets are higher than 1 to 2 per cent, I feel that the estimate of 5 per cent for college students is very conservative.

I shall not dwell long upon the estimate of the prevalence of syphilis among negroes. All those physicians who have long experience with negroes will agree with me that my estimate is well within the facts, and many will feel that it is hardly adequate. With regard to the latter point, I would simply state again that so far as the negro enlisted personnel is concerned, we are here again dealing with picked men, and that I am sure from other figures which I possess, and hope to publish later, the incidence of syphilis among negroes in civil life is even higher. The wide dissemination of syphilis among the negro race is not appreciated by those who derive their statistics from a comparison of hospital statistics for the white and colored races. This is simply because the colored man, on account of both ignorance and poverty, is not nearly so likely to consult a physician or go to a hospital as is the white man. The army admission rate for syphilitics is given by Boas (*Social Hygiene*, 1915, I, 610) as 3.2 per cent for negroes and 2.2 for whites. For the reason above quoted these figures give absolutely no idea as to the relative prevalence of the disease in the two races, and all comparisons or judgments based upon such figures will lead to erroneous conclusions as to the prevalence of syphilis in negroes. I personally feel quite certain that my estimate of 36 per cent for colored enlisted men is conservative, and that it is fully 50 per cent among the same class of negroes in civil life, and furthermore, that the incidence of syphilis among *negro women* is as high or higher than among the men. This is not true of the white race, where among women of the same class the rates are much lower than for the men. I hope later to publish statistics that will fully corroborate these statements.

In connection with these estimates, several words of caution are advisable. The estimates only apply to certain classes, for the most part supposedly healthy young males. They are therefore estimates of certain definite classes of the population, and any attempt to apply these figures to the population as a whole will lead to error. Nothing is at present known about the prevalence of syphilis in the population as a whole, but I do believe it can be estimated in certain groups. It must therefore be remembered that these figures are not to be applied to women and children, for whom they would be far too high. Equally they should not be applied to the sick in hospitals. It is obvious that the percentage of syphilis will be higher among those sick than among those presumably well. Young white males of the laboring class and artisan class in the hospital should therefore be expected to have a higher percentage of syphilis than 20. Furthermore, the evidence is convincing that the incidence of syphilis increases in any group of the population with age. This is undoubtedly because only a few

patients are really cured, and the older the individual, the more frequent have been the opportunities for acquiring the infection.

It is also important to remember that the incidence of syphilis varies with the class or station in life of the group examined. The disease is certainly not so prevalent among educated and refined men as it is among artisans and laborers. I do not know whether wealth, education, and culture give a man more moral stamina or not. One would think the latter two certainly ought to. But even supposing that the morals of this class of men are no better than those of laborers, the fact yet remains that the former class are much more apt to escape venereal disease because when they do indulge in vice they are able to select their companions with more care; they are much more apt to use some method to prevent infection, and are certain to lay more stress upon cleanliness; and if they do become infected, they are much more apt to secure adequate treatment from a physician of skill, since they have both the intelligence to perceive the necessity for such treatment and the means to pay for it.

The facts are in accordance with this theoretical reasoning. The young men at West Point do not differ materially in age from the recruits. But they come from a much better class of the population, and at most only have 5 per cent of syphilitics as compared with 20 per cent in the class of young men who apply for enlistment.

Again, it must not be supposed that it is claimed that all of this very large number of cases of syphilis are infectious and are therefore a sanitary menace to the community. Nothing could be farther from the truth. While we now know on the basis of scientific experiment and clinical observation that syphilis *may* be transmitted during almost any stage of the disease, yet practically the vast majority of infections are acquired from individuals in the primary or early secondary stages. Such cases, which truly are a menace to the community, constitute not more than three per cent of the male population at any one time, if we may estimate the prevalence of primary and secondary syphilis in the civilian community on the basis of admissions for these conditions in the army.

Our last conclusion, to the effect that syphilis is a greater menace to the public health than any other single disease, therefore needs a little interpretation. It is not a menace in the sense that cholera or typhoid is a menace; that is a disease that may become epidemic and attacks the innocent and guilty alike by most devious and frequently inexplicable methods. It becomes a menace because although we can prevent cholera and typhoid, no practical method that the moralist and the sanitarian can both indorse has yet been adopted for the prevention of syphilis. As a result, the 3 per cent of males, not to mention the prostitutes who suffer from syphilis in the infectious stage, are absolutely uncontrolled, and may transmit their infection without let or hindrance. This fact and the great difficulty of curing the disease explain the wide prevalence of syphilis. However, a disease would not become a sanitary menace even though it were very prevalent, if only it were innocuous. But syphilis not only is not innocuous, *but is a very fatal disease.* This fact is seldom sufficiently emphasized, and is quite contrary to general opinion. This is because death certificates seldom give syphilis as the cause of death for obvious reasons. In the past six months I have seen two deaths among the comparatively small number of cases referred to me by physicians for a Wassermann test. One died of cerebral syphilis as the result of an infection acquired only ten months previously, and one died of hemorrhage of the stomach. The latter was a Wassermann fast case who was under treatment for syphilitic ulceration of the stomach. Such fatalities are common, but are called by euphonious names, such as apoplexy, arteriosclerosis, aneurism, heart disease, etc., etc.

In this connection it is interesting to note that in a recent article entitled "Increasing Mortality in the United States" *(N. Y.*

Med. Journal, 1916, ciii, 97), Fisk points out that while the death-rate from the infectious diseases has steadily declined during the past three decades, the death-rates for apoplexy, kidney diseases, and heart and circulatory disturbances have steadily increased. This increase has been so marked that in 1912 the death-rate for organic heart disease exceeded the rate for all forms of tuberculosis. Now when it is known that a considerable proportion of apoplexy is really syphilis, that nearly all aortic lesions of the heart and a considerable proportion of cases of so-called myocarditis are really simply expressions of syphilis, is not the influence of syphilis apparent in this death-rate? And if to this we add the cases of tabes, paresis, and the still-births that are syphilitic, can it be doubted that in spite of general opinion, syphilis is a very fatal disease? This constitutes its menace from the public health standpoint. Syphilis is uncontrolled, it is very prevalent, and it is very fatal. The statement that syphilis is a greater menace to the public health than any other single infectious disease has appeared to some to be an exaggeration. I think the statement is not only strictly correct, but is demonstrable by sound statistical evidence.

THE TREATMENT OF NEVUS FLAMMEUS (PORT-WINE MARK) AND ALLIED CONDITIONS BY FILTERED ULTRA-VIOLET RAYS, EMPLOYING THE COMPRESSION METHOD OF APPLICATION—REPORT OF TEN CASES WITH TWO ILLUSTRATIONS.

BY WILLIAM L. CLARK, M.D.,
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The ultra-violet rays, under certain conditions, have been found to be a successful agent for the treatment of "port-wine" nevi, as well as telangiectases and rosacea, all having the same pathologic anatomic basis, varying only in degree. In the superficial variety of red or bluish-red color, which are based upon subepidermal dilatation with insignificant arterial participation, the obliteration may be complete. In case of hypertrophy of connective tissue, the ultra-violet rays act sluggishly, even after continued radiation, and may not lead to absolute obliteration, but to marked improvement.

THE PHYSICAL PROPERTIES AND PHYSIOLOGICAL ACTION OF THE ULTRA-VIOLET RAYS.

It is known by those familiar with the action of artificially generated ultra-violet rays that when the skin is exposed to them from a distance, even though this distance is short, they have little power of penetration, which property is analogous to the ultra-violet of the sun's rays when sunburn is produced. Likewise they will tan the skin, blonds being more susceptible than brunettes. Bordier and Nogier[5] in 1908 demonstrated that this superficial action is due to the absorption of the rays by the blood, and that ultra-violet rays will not penetrate any substance containing red coloring matter. They act sluggishly when skin pigment is present, as in the brunette. If, however, the tissues are firmly compressed, thereby producing a temporary ischemia, these rays will penetrate to a depth of from one to four millimeters, and under some conditions even more, which is of sufficient depth to act upon the capillaries constituting a "port-wine" nevus, etc. Experimentally, an intense inflammatory reaction has been produced by Hesse[3] and Wichmann[4] in human skin through a rabbit's shaven and scrubbed ear when compression was practiced, but there was no reaction whatever in another area of the same skin when compression was relaxed, though rays from the same source and strength were employed.

These rays will not penetrate the thinnest film of glass or fine mesh fabric, such as photographer's cloth, or tin-foil, but they will pass through air, water, and quartz.

The interposition of a thin piece of dark cloth or adhesive plaster will absolutely prevent the passage of the rays and protect the skin or eyes. When a thin disk of quartz colored blue is interposed, the red, yellow, and green which constitute the irritating wave lengths are filtered out, in consequence of which there is less inflammatory reaction, tanning and swelling of the skin than when this quartz filter is not employed. It has also been found that there is greater penetration when the filter is used. These properties are analogous to those of filtered Roentgen rays when aluminum or sole leather filters are used. In the case of "port-wine" nevi and allied lesions, when compression plus the blue quartz filter is used, thrombosis and an inflammatory reaction is produced in the capillaries comprising the nevus, of sufficient intensity to cause absorption, subsequent loss of function, and final obliteration. One to four applications are necessary, depending upon the character and depth of the particular nevus, pigment of the skin, strength of the ultra-violet rays, time of exposure, and the thickness of the blue quartz filter. The thicker the filter, the longer must be the exposure. A filter of 3 mm. thickness has been found to give best results. It has been noted that brunettes usually require a longer treatment than blonds, which is due to the resistance offered to the rays by the skin pigment. A "port-wine" nevus which fades readily upon pressure should respond to two forty-minute exposures, providing the connective tissue is not thickened. Those that will not fade readily upon pressure may require four forty-minute exposures. These figures are not arbitrary, but approximate. Some of these lesions may require more and some less.

Healthy skin is more susceptible to the ultra-violet rays than skin which is congested, hence it is necessary to well protect it. This can be done by allowing the area under treatment to remain uncovered and protecting the surrounding normal skin by strips of zinc oxide adhesive plaster. The operator's hands should be protected with gloves. In a few hours the area treated turns slightly darker in color and there may be a moderate degree of swelling and edema. A fine network of darkened capillaries can be seen running through the nevus. The reaction becomes gradually more intense for about forty-eight hours, when it begins to subside. Slight desquamation of the skin takes place, and in from one to two weeks the nevus is seen to be markedly lighter in color. A second treatment may be given at the end of three weeks, and after each treatment the nevus grows still lighter. For several months after these treatments the lesion will continue to fade. In two cases the patients lived out-of-town and could not return in three weeks, the usual period between treatments. I was surprised to note after several months the great improvement that had taken place, more than could be expected in three weeks. The swelling which takes place after treatment is caused by pressure as well as by the action of the rays. After the first treatment the skin is not quite as susceptible to the rays as it was originally, hence to create exactly the same reaction as was formerly produced, the time of exposure must be lengthened, although this is not always necessary to attain the desired result.

INSTRUMENTATION.

The iron carbon lamps of the Finsen type which are used for generating ultra-violet rays are not practical for compression work. The Kromayer modification of the Cooper-Hewit mercury vapor generator is used by the writer and has been found to be practical for this purpose and to fulfil all requirements. The 110-volt direct current is employed to energize the lamp, but the alternating current may be used with a motor transformer. In this generator the mercury is contained in a quartz encasement, which is in turn enclosed in a metal receptacle, in which is provided an aperture for the rays to escape. This instrument is portable and can be easily handled. Quartz lenses of various sizes may be fitted in the opening, and the lens pressed firmly

against the part to be treated. There is no sensation felt by the patient during treatment except the pressure. There is a rheostat to regulate the intensity of the rays, but they are usually given full strength. It is necessary to have a continuous circulation of water around the quartz containing the mercury, else the lamp will quickly burn out, and may burn the patient. This is done by means of two rubber tubes, one an inlet and the other an outlet, carried from a spigot and returning to a drain or some receptacle. The lamp should be kept clean; if a film of carbon is allowed to accumulate on the quartz it will interfere materially with the amount of rays delivered, and may even retard them entirely. Two temporary failures in the writer's experience are attributed to this cause. The largest quartz lens that can be used with this generator measures 1¾ by 1¼ inches, hence this is the largest sized area that can be treated at one sitting.

TECHNIQUE.

There is no limit to the number of areas that can be treated in one sitting, unless the patient becomes fatigued. The area is mapped out with adhesive plaster. When a second area is treated at the same sitting, care should be taken not to expose a portion of the first area twice. If a large lens is used to treat a small area, it may overlap the adhesive plaster without danger. The eyelids may be treated, but care should be taken not to expose the cornea, or damage may be done. It is a wise precaution to protect the eyes during all treatments by goggles or other suitable covering. If the lesion is on the face or in some region leaving the arms free, patients, after protecting the hands with gloves, may hold the lamp; in fact this is desirable, as they can regulate the pressure very well after instructions. In the case of children, of course, another must apply the treatment. Experience has taught that it is better to give thirty- to forty-minute treatments if possible. Longer than forty-minute treatments may possibly be given to advantage in some cases, but forty-minute exposures are the longest the writer has ever given. If short exposures, say twenty minutes, are given, a greater number of treatments will be necessary.

CASE HISTORIES.

Case 1.—Referred by Sisters of St. Agnes Hospital. Girl, octoroon, seven years of age. "Port-wine" nevus on left side of face, involving eyelids, nose, cheek, and upper lip; also several areas of telangiectases. No fading upon pressure. First treatment August 11, 1914. Six twenty-minute exposures of each area were given, averaging three weeks apart. Both "port-wine" mark and telangiectases very much improved, but will require more treatment. This case did not respond as readily as some others, which was found to be due to carbon coating on the quartz, and pigmented skin.

Case 2.—Private case. Male, aged twenty-five, brunette. Deep purple-red congenital "port-wine" nevus on left side of face, involving eyelids, nose, and lip. No fading under pressure. The nevus was studded with small erectile angiomas, which were successfully treated by the desiccation

CASE 2.—Nevus flammeus studded with small erectile angiomas.

method. First ultra-violet radiation September 3, 1914. Six twenty-minute exposures of each area were given, averaging three weeks apart. The nevus became lighter in color after each treatment, and

at the present time there is slight evidence of the mark, the skin remaining soft and smooth. An interesting feature of this case was a marked enlargement of that portion of the lip involved by the nevus, which became almost normal in size after treat-

CASE 2.—Showing result after ultra-violet radiation, and desiccation treatment of angiomas.

ment. This patient had been treated by chemical caustics without success, which resulted in some scarring. These scars were very much improved by the ultra-violet treatment.

Case 3.—Referred by Dr. W. S. Howell, Winnebago, Ill. Male, aged forty, blond. Congenital reddish-blue "port-wine" nevus on left side of face, involving upper and lower eyelids, lateral aspect of nose,

CASE 3.—Nevus flammeus before treatment.

the cheek midway to ear, to below the corner of the mouth and half the upper lip. Another similar nevus ½ by ¾ inches in diameter just anterior to the ear. Slight fading under pressure. First treatment January 14, 1915. Four twenty-minute exposures of each area were given, averaging two weeks apart. After each treatment there was great improvement. This patient returned for inspection eight months later, when only the faintest pinkish tint was to be seen. Another twenty-minute exposure was given, and at the present time there is little evidence of the original lesion. Lip was thickened, as in Case 2, and became

CASE 3.—Showing result after ultra-violet radiations.

almost normal in size after treatment. The patient had been treated previously by electrolysis and carbon dioxide snow without success, and resulted in scarring. As in Case 2, the scars were very much improved.

In a letter from the patient he uses these words: "Treatment of my nevus was a complete success. Upon returning home most of my friends and relations needed an introduction to me."

Case 4.—Referred by Dr. C. F. Adams, Trenton, N. J. Male, aged twenty-two, brunette. "Port-wine" nevus involving lower left side of face, chin, and neck. No fading under pressure. First treatment January 3, 1915. Three twenty-minute exposures of each area were given, averaging two months apart. Improved, but still under observation. Not quite as much improvement as ordinarily takes place with this length of exposure, but this was also due to carbon on quartz lens, and dark skin, as in Case 1.

Case 5.—Referred by Dr. J. A. McCullough, Steubenville, Ohio. Child, male, ten months old, blond. "Port-wine" nevus right side of face, involving the eyelids, nose, lip, cheek, ear, and forehead. Faded upon pressure. First treatment January 29, 1915. Two twenty-minute exposures to each area were given two months apart.

A letter from the father states there has been much improvement. Further treatment will be given.

Case 6.—Referred by Dr. R. P. Cummins, Philadelphia. Child, male, six months old, blond. "Port-wine" nevus tip of nose. Faded upon pressure. One fifteen-minute exposure, March 19, 1915. The nevus was practically obliterated. The happy result obtained in this case by one fifteen-minute exposure was probably due to the thin skin possessed by a child of six months, and consequently greater activity of the rays.

Case 7.—Referred by Dr. W. B. Snow, New York City. Woman, aged thirty-five, brunette. This patient had a deep-red "port-wine" mark on the lower left side of face and neck, covering an area of four by five inches. She had previously been treated by the Roentgen rays. It did not improve the "port-wine" mark, but superimposed upon it severe telangiectases, pigmentation, and atrophy of the skin. One thirty-minute exposure of ultra-violet August 31, 1915, has improved the condition very much. It has not only almost cleared up the "port-wine" mark and the pigmentation, but the telangiectases caused by the Roentgen rays have been obliterated, and the atrophied skin has a much improved appearance. One more treatment will be given this patient.

Case 8.—Referred by Dr. W. W. Silvester, Norfolk, Va. Woman, aged twenty-six, brunette. "Port-wine" nevus on left side of face, involving eyelids, nose, cheek, and upper lip, extending to the neck. First treatment September 23, 1915. Two twenty-minute exposures were given. Condition improved; still under treatment.

Case 9.—Referred by Dr. L. Raring, Philadelphia. Female, aged twenty-four, blonde. "Port-wine" nevus on left side of face, involving eyelids, nose, cheek, and lip, fading slightly under pressure. First treatment November 15, 1915. Two twenty-minute exposures of each area, averaging two weeks apart, resulted in almost complete obliteration of the lesion, leaving the skin soft and smooth. Another treatment will be given, which is expected to obliterate the lesion entirely. This case had been treated previously by carbon dioxide snow without result. There was some scarring, and the ultra-violet treatment improved the scars, as in Cases 2 and 3.

Case 10.—Referred by Dr. W. C. Posey, Philadelphia. Girl, aged eight years, blonde. "Port-wine" nevus on right side of face, four inches long and two inches wide. Faded upon pressure. One thirty-minute exposure February 2, 1916. This nevus has faded about one-half. Treatment will be continued.

In addition to the lesions reported the writer has found the ultra-violet rays applied with the technique described to be most successful in such vascular lesions as lupus erythematosus, eczema rubrum, and acne rosacea.

CONCLUSIONS.

My experience with filtered ultra-violet rays by the compression method in the treatment of nevus flammeus and allied skin lesions has led to the following conclusions:

1. "Port-wine" nevi, telangiectases, rosacea, and other superficial vascular skin lesions may be treated with good cosmetic results.

2. Powerful ultra-violet rays with screens to filter out the red, yellow, and green, and compression by means of a quartz lens, are necessary for success.

3. The treatment will improve scars caused by caustic agents sometimes used to treat these lesions.

4. Failure may be due to imperfect technique, carbon adhering to the quartz enclosing the mercury or to the lens.

5. Nevi which fade upon pressure respond more rapidly than those which do not fade, though both types are quite amenable to treatment. All nevi do not react with equal promptness. When there is a complication of thickened connective tissue, prolonged treatment is necessary.

6. Young children respond more rapidly than adults, because the skin and vessel

walls are thinner and less mature, hence the activity of the rays is augmented.

7. Enlargement of features, such as lip, nose, etc., due to blood engorgement, sometimes complicating "port-wine" nevi, are reduced by this method.

8. Brunettes require more prolonged treatment than blonds on account of the resistance offered to the rays by the skin pigment.

9. Healthy skin is more susceptible to ultra-violet rays than abnormal skin, and must be protected.

10. This is a safe method for patient and operator.

1809 CHESTNUT ST.

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AN OUTLINE FOR THE MANAGEMENT OF CARDIAC CASES FROM THE OUT-PATIENT DEPARTMENT STANDPOINT.

The *Boston Medical and Surgical Journal* of January 20, 1916, contains an article by WENTWORTH in which he well says that the most important drug in the treatment of cardiac affections is digitalis. Fraenkel, Schwartz and Cloetta have shown that, in therapeutic doses, digitalis has no effect upon the normal heart either in affecting the strength of the beat or in causing hypertrophy; neither has it any effect upon perfectly compensated undilated hearts with a valvular lesion. Its chief effects are seen in dilated hearts whose myocardium still retains some reserve power. In the severest forms of cardiosclerosis and fatty degeneration it may stimulate the fibers to the limit of their powers and thus do actual harm. In giving digitalis it is important to get a definite effect and not to push the drug beyond the first stage of its activity—*i.e.,* slowing of the pulse and increasing its size and to avoid the onset of the second stage (arrhythmia).

As hearts vary in their susceptibility to digitalis, and since it begins to act only after twenty-four hours and may have a cumulative effect, the amount and frequency of the dose is not a simple problem. Its effect must always be carefully watched, and if the rhythm becomes more irregular it must be discontinued. When any disturbance of the conductivity occurs it is positively contraindicated. It is useful, first, in cases with broken compensation; secondly, in cases in which acute dilatation persists in spite of rest; thirdly, in persistent tachycardia which does not yield to other treatment. It is contraindicated in cases of heart-block and in cases in which the heart muscle has been diminished by myocardial changes.

There are some cases which show some signs of circulatory weakening and yet which do not seem to require digitalis. In these cases strychnia and camphor are used with good results. Strychnia is particularly valuable in cases of disturbed respiration following extreme heart failure, as in Cheyne-Stokes breathing and cardiac asthma. In such cases it should be used whether digitalis is being given or not. Camphor, like strychnia, is a vasomotor stimulant. Its most important use is in shock. (Best used as camphorated oil in 20- to 45-minim doses.)

Caffeine, like digitalis, acts upon the cardiac muscle, and raises the blood-pressure by constriction of the peripheral blood-vessels, and is therefore particularly valuable in conditions of shock and collapse. In this regard it is more valuable than camphor or strychnia, but unfortunately it is often accompanied by palpitation, sleeplessness, and even nausea, vomiting, and

delirium, which occur particularly easily in cases of heart disease.

Aconite in therapeutic doses slows the heart by stimulation of the vagus, but has little effect on the heart muscle. It is therefore of value in fevers where the heart muscle itself requires no stimulation, but the heart needs slowing. It is of value in many cases of tachycardia, especially those of nervous origin.

The nitrites are ideal in many cases to relieve the work of the heart over short periods where the blood-pressure is not already too slow to admit of their use. Nitroglycerin must be used with the utmost caution, as individual susceptibilities vary greatly. Loeb reports a case of collapse after a dose of a hundredth of a grain, whereas Stewart has reported giving 20 grains a day to a single patient.

The home regulation of a case is the most difficult to manage, but much may be done if the home facilities are not impossible and the family are willing to coöperate. A room can usually be obtained where the patient may be left in comparative quiet and lie down for periods of rest both morning and afternoon, the length of time depending upon the cardiac condition and the degree of patience which the patient has for keeping quiet under these circumstances. In cases of broken compensation the only place for them is bed, and bed 24 hours out of 24. When compensation has been established it is wiser to give the patients a few simple resisting movements a few minutes a day or several times a day for a few days than to run the risk of their getting up, for Wentworth has found that if they are once allowed to get up it will be hard to keep them from overdoing it at first and a great hardship to have to go to bed again. Each case must be regulated to its own ability to do work—*i.e.*, to be about. The first work to be taken up beyond the resistance exercises is walking. This must be very short at first, until the power of the individual is learned; then the amount is gradually increased.

The diet in the severer cases, in which bed treatment is required, is all-important. An increase in blood-pressure becomes manifest within a few minutes after the ingestion of a meal, reaches its maximum within one or two hours, and declines more slowly. The pulse-rate is always distinctly increased by eating; therefore the diet should be light, just enough to keep up nourishment, without ever causing a sense of fulness or allowing gas to form. Gas in the stomach pushes up the diaphragm and embarrasses the action of the heart, causing decreased systolic output and an increased rate. The lacto-cereal diet is best. This is made up of milk, eggs, custards, junket, crackers, zwieback, and toast. Most of the prepared cereal foods are good, since they give much nourishment with small bulk and are easily digested. Meat should be given sparingly, if at all, because the purin bodies tend to raise the blood-pressure and the fibers are relatively slow of digestion.

In cases of edema liquids should be limited to three pints a day. Salt should be withheld as much as possible, as it is a contributing factor in the production of edema.

An excellent diet for heart cases of a severe form (Widal and Pavel, Strauss and Richter), which can be modified to suit the individual case, is as follows:

8 A.M. Cereal, soft egg, toast, coffee, 6 ozs.
10 A.M. Milk, 6 ozs.; soft egg, crackers.
Noon. Soup, chicken, potatoes.
4 P.M. Milk, 6 ozs.
6 P.M. Milk, 6 ozs.; soft egg, crackers, prunes.
9 P.M. Milk, 6 ozs.; bread.

In the less severe cases it is well to have the patient lie down for at least fifteen minutes after each meal and for a full hour morning and evening. In order to be sure that this is carried out a definite hour should be selected, say from 11 to 12 and from 2 to 3, and have the one responsible show a list of the food, with the amount eaten, as well as the actual hours in bed.

As to recreation, the patient, if possible, should be kept off the street, even in the milder forms. Comparatively quiet yards or porches out-of-doors are often obtainable.

EDITORIAL.

THE TREATMENT OF SYPHILIS.

This subject, like that of anesthetics, is constantly discussed with great advantage and, very properly, is never exhausted because our advance in knowledge gives us clearer conceptions of the various phases of the disease and because syphilis is capable of affecting practically every tissue of the body. Many persons have thought, in the past, that once a diagnosis of syphilis was made the treatment was a comparatively easy proposition, and that if the mercurials were freely administered all was being done for the patient that was possible. If he steadily improved, the physician congratulated himself and his patient; if he failed to improve, the physician consoled himself with the thought that the virulence of the infection, or the feeble resistance of the patient, made a cure impossible.

It has become increasingly manifest in regard to syphilis and the remedies which are employed for its control, as it long since became manifest in regard to digitalis in the treatment of heart disease, that fully half of the benefit which can accrue by treatment depends upon the skill and judgment with which the proper drugs are employed. In exactly the same way that he who operates frequently for cataract or appendicitis will obtain better results than he who rarely operates for these conditions, so will better results accrue when antisyphilitic remedies are administered by men of experience than when they are employed by those who have had little opportunity to study their effects.

A good illustration of this point of view is offered in an article contributed to the *Boston Medical and Surgical Journal* of February 10, 1916, by Morton Smith, who states that some years ago a patient was sent from the medical to the dermatological department of a hospital with a note which read, "Has this patient got syphilis? If so, send her back and we will treat her," thereby intimating that a general medical man considered himself the equal of the specialist in the treatment of a dangerous and virulent disease. Of course, it is quite possible for the general medical practitioner, by reason of his experience, to be skilful and successful, but the general proposition is that the syphilologist is better equipped.

The epoch-marking discovery of Noguchi, to the effect that the microörganism of syphilis is to be found in the perivascular tissues in cases of paresis and often late syphilitic manifestations, has thrown a flood of light upon the general subject of the cure of syphilis. Not only has it proved that paresis and ataxia are, in the vast majority of instances, due to this infection, but it has also proved that mercury is not the absolute specific that it was at one time thought to be, and that the old statement that "three years of mercury meant a cure" is entirely erroneous. On the contrary it may well be that the use of mercury may actually develop in the body a strain of spirochætæ which are immune to its influence, just as the use of small doses of quinine may, in the end, result in a brood of malarial parasites which no safe dose of quinine can destroy. Furthermore, Noguchi's work has led to the discovery that even intravenous injections of salvarsan cannot reach the spirochætæ in the cerebral tissues, and, barring the employment of the so-called intraspinal injection of salvarsanized serum, syphilis of the central nervous system is as incurable to-day as it has ever been. While it is true, therefore, that late syphilis is extremely difficult to cure, it is equally true, as with all other infectious diseases, that its early recognition and active treatment afford the best opportunity for the complete relief and cure of the patient. It is to be regretted that we have no accurate scientific test for the discovery of the very early infection by syphilis, since the Wassermann reaction does not appear until general systemic infection has undoubtedly occurred. Of course, he who is skilful with his microscope can in a considerable proportion of cases obtain from the site of the initial lesion the specific parasite which, when

properly stained, can be recognized, and so the diagnosis can be made to rest upon a scientific basis. Because the parasite is not found when looked for does not prove that the case is not one of early syphilis, for, as with the examination of sputum for the tubercle bacillus, if found the diagnosis is positive; if absent the result only means that the parasite was not found, although it may be present.

If the diagnosis of early syphilis is so difficult the universal use of prophylactic measures is manifestly the first step toward eradication of the disease. The use of prophylactic measures before coitus fails for obvious reasons, but it has now been proved beyond all doubt that the employment of a thirty-three-per-cent calomel ointment thoroughly rubbed into the site of possible inoculation within one hour after exposure is an efficient and complete prophylactic measure. Its value has been proved in all the armies and navies of the civilized world, including our own, and it only remained for the Secretary of the Navy to issue an order forbidding the issue of the prophylactic package for fear that he was encouraging immorality if it was dispensed, to have an increase in the prevalence of syphilis occur. By an inadvertence he has aided in establishing a scientific fact, and by misunderstanding conditions he has aided in the spread of virulent disease and in a decrease in fighting efficiency.

A very important point to be borne in mind by the clinician who is brought face to face with this disease is the fact that neither salvarsan nor mercury is adequate by itself to produce a cure. The best results are undoubtedly obtained by the employment of both of these drugs, and it is to be regretted that so high an authority as Wechselmann should have enunciated the view that to employ salvarsan when mercury had been used was dangerous. Most syphilographers now agree that the repetition of the intravenous injections of salvarsan or neosalvarsan every ten days should be accompanied by the daily administration of one of the mercurials by the mouth; or, in other instances, by the intramuscular injection of mercury once a week, usually in the form of one grain of salicylate of mercury. This treatment should be continued until the Wassermann reaction is negative, when a period of three or four months may elapse without any treatment. If the Wassermann reaction is positive at the end of this time, or if a small provocative dose of salvarsan makes it positive, the treatment should be renewed. If not, on general principles mercurials should be administered for three or four months and another test made.

A very important factor in the cure of syphilis, which receives far too little attention, is the recognition that, as it is in its early stages an acute infectious disease, everything should be done to improve and maintain the general health of the patient. We have come to fully appreciate the full value of fresh air, sunshine, and good food in the treatment of every infection save, perhaps, that of syphilis, and undoubtedly one of the reasons that syphilitics who go to various health resorts for treatment speedily improve, when they have failed to improve while at home, is, in many cases, dependent upon the fact that they are placed in favorable hygienic conditions and, therefore, are the better able to combat their disease. Rest, which markedly increases vital resistance and is therefore essential, is obtained, and when a line of drug treatment which has been correct in theory is duplicated at such a health resort favorable results are produced.

The appalling result of this disease, not only to the patient himself but to those of his or her descendants that survive, and the fact that carelessness in its early stages may result in wide-spread diffusion of the infection, ought to stimulate medical men, health officers, and legislators to a constantly increased vigor of campaign along the line of sexual hygiene, along the line of knowledge as to prophylaxis after exposure, and by a general diffusion of the information that prompt, early, and vigorous treatment affords the only hope of permanent cure.

In ancient times that very feebly contagious malady known as leprosy was treated

prophylactically, for the cry which came from every one's lips when the leper approached was "Room for the leper, room!" The prevalent ideas of syphilis stand in the way of such a custom in modern times, and possibly this popular feeling is wise, but the poor wretch with leprosy is as feeble in conveying infection, as compared to the active case of secondary syphilis, as the bite of an ant is capable of doing harm when compared to the bite of a lion. The conditions are such that a patient with active secondary syphilis is allowed to wander from hospital to hospital, or from office to office, as freely as a healthy citizen. As a matter of fact the greatest value which has come from the introduction of salvarsan is that the patient can, to a very large extent if not completely, be sterilized so far as the spread of the disease is concerned.

DIET IN CHRONIC HEART DISEASE.

There can be no doubt that many physicians do not pay sufficient attention to the question of the patients' diet when they are treating them for diseases not necessarily associated with disordered digestion. If for no other reason, attention should be paid to this matter because patients expect it and, if dietetic advice is not given, they may think that the physician is careless. By a curious condition of affairs it would seem probable at this time that advice as to diet is given in connection with certain conditions where it is not particularly essential, and is not given in other conditions where it possibly is the greater part of the treatment which is to be followed. Where there are disturbances of the digestive function in the stomach or intestines it, of course, is necessary that certain foodstuffs should be excluded, and in all conditions of disease it is obvious that foods which are difficult of digestion should not be given the patient, since they demand greater energy for their digestion and absorption than easily digested foodstuffs and, by causing indigestion, may produce complications in the intestinal tract or in the cardiovascular system which are disadvantageous.

We think that the institution of a very limited diet, both as to the variety of food and the quantity which is taken, is rarely necessary in cardiac disease so far as the cardiovascular condition is concerned. If the liver is engorged and, as a result, there is impairment of digestion with gastroduodenal catarrh, it goes without saying that very small amounts of easily digested foods are essential, just as they are needed when digestive disorders of a primary nature are present. The use of very limited quantities of food means that the patient has to feed upon himself in order to get the number of heat units in each twenty-four hours which are essential for his existence. This is a point which is too frequently ignored. It is generally admitted that from 1500 to 2000 calories are required by an adult in each twenty-four hours in order that he may carry out his ordinary physiological functions without doing any work or taking any muscular exercise. If a diet is given which contains less than this number of calories the body turns upon itself and uses up its own tissues, so that eventually distinct emaciation occurs. The healthy man who is deprived of food for a few hours beyond the time when he is accustomed to taking it not only feels hungry, but soon feels faint, and if this is true for the man in health it must also be true for the man whose circulation is impaired.

In the majority of cases of heart disease, whether they be instances of ruptured compensation due to valvular lesion, or failing circulation due to myocardial degeneration, the chief endeavor of the physician is to put more strength into the heart muscle, and we fail to see how an exceedingly low diet is compatible with this effort. It certainly would not be considered compatible with an effort to increase muscular strength in other parts of the body. Food easy of digestion frequently administered, or food which is predigested and frequently administered, will often produce the best results, since the taking of two or three hearty meals may, by giving the digestive apparatus a difficult task, also require of the circulatory system too great activity. For this

reason we differ from Satterthwaite, who writes in the *Interstate Medical Journal* for January, 1916, that a fundamental rule which is always applicable is that the diet should be sparing. So, too, we think that the statement that coffee and tea should be prohibited, and that most of the advertised substitutes for coffee are also objectionable, is too dogmatic. The statement is also made that chocolate is an undesirable beverage for heart patients as it is constipating, and, finally, emphasis is laid upon the statement that liquids, if given freely, are an additional burden to the heart. With these views we also fail to agree.

So far as we know, there is little or no evidence to indicate that coffee and tea, when taken in moderation, are disadvantageous in cases of heart disease. On the contrary there is much evidence, particularly in the European clinics, that caffeine is a valuable cardiovascular stimulant, and caffeine, of course, is the chief ingredient of coffee and tea. The theobromine, which is found in chocolate, is more diuretic than caffeine, and, unless the patient shows an idiosyncrasy or is unable to digest rich or fatty substances, we can see no reason why he should be deprived of chocolate, although, perhaps, cocoa, being less rich, is a better drink.

We heartily agree with the statement made by Dr. Satterthwaite to the effect that each patient is a law unto himself and that individual idiosyncrasies must be carefully taken into consideration in the dietetic treatment of all cases, but we also feel strongly that unless there are exceedingly good reasons for the institution of rigid dietetic measures they ought not to be attempted. Aside from being inconvenient and tantalizing, the institution of a rigid dietary, by which a patient is deprived of something to which he has been accustomed for years, causes actual mental and physical discomfort and, in a very considerable number of cases, actual harm. A man who has been accustomed for thirty or forty years to have a cup of hot coffee, tea, or cocoa with his breakfast is actually punished if these things are forbidden him, and not only loses the comfort but the effects of the alkaloids which his breakfast cup contains; and his digestion, which for years has been trained to this stimulation, often fails in its function when the only beverage allowed him is cold water or hot milk, the latter being exceedingly distasteful to some people, and certainly much more constipating than cocoa or chocolate.

Even when chronic disease of the kidneys is present to a moderate extent it is questionable whether the institution of a rigid diet is the best thing for the patient. If the man has only a short time to live the human question arises as to whether the institution of a rigid diet will really prolong his life, and if it will not, whether his remaining days should not be as comfortable as possible. We have repeatedly seen persons who were inevitably condemned to death within a few weeks, by reason of cardiovascular or renal disease, made miserable during their remaining days by the institution of rigid, but not essential, diet rules.

While writing this leading article our attention has been also called to a contribution by Abrahams to the *New York Medical Journal* of Jan. 15, 1916. We are glad to see that, to use his words, he indulges in personal comforts instead of calculated calories borrowed from others, that he cherishes a wholesome respect for a patient's palate and preference in the matter of diet, unless there is some extraordinary reason for ignoring them, and he recognizes that a stereotyped diet tries a patient's soul as well as his stomach. It goes without saying, as he well points out, that the mere existence of a valvular murmur, accompanied by good compensation, does not justify any regulation of the diet, unless the patient is such an abnormal eater that he should be warned against gluttony on general principles. We are glad to see that where there is ruptured compensation he believes that food may be taken with impunity and of almost any kind, provided that instead of three large meals a day he takes six small ones. This is in line with the opinion which we have already expressed in this note. We think that

Abrahams also is wise in considering that the etiological factor in the production of the cardiac lesion has possibly more to do with the regulation of the diet in heart disease than the actual lesion which is present. Thus, in gouty persons it is obvious that foods which are notoriously gouty, like concentrated soups, various forms of game, liver, sweetbread, and other substances, are to be avoided.

We cannot agree with him that in acute articular rheumatism, involving the heart, patients bear red meat badly, unless it be during the febrile period, when it is questionable as to whether meat in any form is wise. On the contrary, acute articular rheumatism, being an infectious disease particularly prone to produce profound anemia and feebleness, indicates, when the period of convalescence is established, even if the heart has been badly touched, as full diet as the digestive system of the patient can manage.

Again, we think the opinion expressed by Satterthwaite, in the article already quoted, and the view expressed by Abrahams, to the effect that the free taking of liquids increases the labor of the heart, are not based so much upon actual observation as upon the general impression which seems to be common throughout the profession. Of course, the presence of renal disease, which prevents the free elimination of fluid and which aids in the circulatory break-down inducing dropsy, is manifestly a contraindication to the ingestion of large quantities of fluid, since, although the liquid gets in easily, it escapes with difficulty. The commonly held view that the drinking of fluid particularly increases the labor of the heart by increasing the volume of liquid in the blood-vessels is, we think, erroneous; if it were true the specific gravity and corpuscular content, as well as the tonicity of the blood serum, would be constantly changing. This we know to be contrary to the fact. There is no part of the body which is guarded so zealously by nature as the blood. Various mineral substances when placed in the stomach are either not absorbed, if the blood is carrying all of them that it can, or, if taken up, are eliminated so speedily by the kidneys that the content in the blood stream is never materially altered. The same thing holds true of water. It is either not absorbed, or, if it cannot be rapidly passed out by the kidneys, it is deposited in the tissues until it can be eliminated. The mere drinking of water does not, therefore, increase the bulk of the circulatory stream.

By this we do not mean to advocate that patients shall be allowed to distend the stomach by large amounts of water taken in an individual drink. The point that we wish to emphasize is that there is no necessity in cardiac disease, if the kidneys are competent, of forbidding the patient a sufficient amount of liquid, in small divided doses, to allay his thirst and make him comfortable. If the cardiac muscle is so weak that an adequate circulation cannot be maintained the fluids should be cut down, not so much because they add to the actual bulk of fluid in the blood-vessels at a given moment, as because the impaired circulation interferes with the function of the kidneys and prevents the elimination of fluids, which are then deposited in the tissues, producing edema, which is manifestly disadvantageous. This edema in many instances can be relieved, from time to time, by the use of hydragogue cathartics without causing the patient to suffer from thirst through the denial of liquids taken by the mouth.

THE ACTION OF BITTER TONICS ON THE SECRETION OF GASTRIC JUICE.

One of the most commonly accepted opinions amongst medical men is that the administration of the so-called bitter tonics is beneficial, in the treatment of convalescence from acute diseases, in that they aid digestion by increasing the tone of the gastric mucous membrane or by causing more free secretion of gastric juice. Such tonics are also very frequently given in cases of general debility and impaired digestion arising from ill health due to other causes. Not long ago these views seemed to receive a serious blow because of an

investigation by Carlson, who, administering bitters to normal men and normal dogs, found that they had no effect which was advantageous, and that sometimes there was a diminution in the quantity and quality of gastric secretions rather than an increase. As Carlson's experiments were carried out over a considerable period of time they possessed weight, although, of course, it is not to be forgotten that as his experiments were made upon men or animals in health they are not necessarily a guide as to the effects of these substances in ill health.

It is interesting to note that acting under the instigation of Carlson, Moorhead (*Journal of Pharmacology and Experimental Therapeutics* for December, 1915) has carried out another series of investigations in which he used not normal but abnormal conditions, well recognizing that certain drugs do not elicit their specific action except in pathological states.

As we have pointed out in other leading articles, the time has come when we should have experiments not only upon healthy men and animals within justifiable limits, but also should have records of the influence of drugs in various conditions of disease; and it is an encouraging sign of the times that laboratory workers are beginning to recognize the fact that practitioners of medicine cannot be guided alone by experiments upon healthy tissues, although such experiments deserve support and recognition in that they give us clearer conceptions in regard to the effects of drugs in general, and because it is essential that we should have information in regard to the action of drugs upon healthy as well as upon unhealthy conditions. It is also interesting to note that Moorhead fully recognizes the fact that the skilled practitioners of to-day believe that the employment of bitter tonics in suitable cases does improve the condition of the patient. He asks the question, however, as to whether they stimulate the appetite, the gastric secretion, or both, or is their action purely psychical?

In Moorhead's study of the action of bitters upon normal dogs he found that whether these drugs were given by the mouth or sent directly into the stomach they had no appreciable influence upon the appetite nor any material effect upon the gastric secretion, either as to quantity or quality, except possibly a diminution of total acidity. So far his results are in accord with the early ones of Carlson. Using dogs which were in ill health because they suffered from chronic anemia which was artificially produced by repeated bleedings, he found that these bitter tonics acted in quite a different way, since they exerted a distinctly favorable influence upon the appetite, although the animal did not consume an amount of food which was equal to the normal because of its feeble condition. He states that there can be no question that the influence of these bitters is definite and significant. When given by the mouth they cause both an increase in the quality and quantity of the gastric juice, the pepsin content remains fairly constant, and the change is both in the free and total acidity. Here, again, the amount of gastric juice was not up to the normal, but nevertheless it was above that which was secreted without the influence of these drugs.

Another interesting point developed by Moorhead is that these bitters introduced directly into the stomach of cachectic dogs have no appreciable influence upon the quantity or quality of the gastric secretion, which would seem to indicate that the secretion is caused reflexly through the nerves of taste and not by any direct stimulation of the stomach itself.

THE FOLLOW-UP SYSTEM.

Although to the visiting chief, and this particularly if his services be used in teaching students, the function of a hospital would seem to be educational, the institution was originally started and was endowed for the benefit of the patient, nor are its by-products of any large service unless its fundamental purpose is kept clearly in view. It is obvious that no clear knowledge can be obtained concerning the benefits derived from hospitals unless there

be made a systematic effort to determine how efficient the treatment given in a hospital was to each individual; success being gauged not merely by correspondence between diagnosis and pathological findings, but by the final test of the complete relief of the crippling symptoms for which the patient originally entered the hospital and the return of that patient to the highest possible degree of permanent health.

It follows then that the first step toward greater efficiency lies in a comprehensive and thorough study of the results, and that these results can be obtained only by learning the condition of patients after they have left the hospital. Hence all efforts at what is called the follow-up system logically lead not only to the greater benefit of the hospital patient but to improvement in hospital administration in all its departments, and particularly in the departments of diagnosis and treatment. In this relation the contribution of Corscaden (*Journal of the American Medical Association,* March 11, 1916) is of importance as setting forth in some detail the method pursued in the Presbyterian Hospital in New York. This lies essentially in prevailing on the patient to return. On his discharge from the hospital he is given a card on which is written a definite date and hour for his reëxamination. If he does not appear he is sent a card making an appointment for a week later. Should he again fail to return he is taken up by the social worker, who visits him and endeavors to have him return, and failing in this obtains as complete information about him as possible. The practical working of this system must depend, of course, upon an adequate history taken in the first place, and upon an accurate description of the patient's condition on leaving the hospital. Moreover, the interest of the attending surgeons must be secured. It is the custom to notify them by mail of the various appointments for the next examining day of the patients whom they have treated in the wards. During convalescence an attempt is made by the visiting and resident surgeons and the nursing staff in conversation to impress the patient with the importance and desirability of returning to the hospital for subsequent examinations.

Corscaden gives the forms of cards employed in both the follow-up and record systems. Two classes of reports are turned in by the social workers, first (*a*) a medical report in which sufficient data are given for determining the present clinical result, and (*b*) an "incomplete" report which, although not containing complete medical information, gives some knowledge of the patient's earning capacity, general health, etc.

The personnel required has consisted of one full-time assistant clerk in the record room, two assistant visiting surgeons working three hours a week each, and the full time of a social service worker. One assistant surgeon is designated the "follow-up committee," and has general oversight of the follow-up work.

As to the results, 45 per cent responded to the card given in the ward, over 23 per cent responded to letter, and nearly 10 per cent to social service, this response being in the form of personal appearance for an examination at the hospital. Information was gained in over 14 per cent by letter or through social service, giving a grand total of 91.6 per cent about whom information was obtained—6.8 per cent being out-of-town cases were not followed; 1.6 per cent of cases were not found by any part of the system.

Corscaden holds that the results indicate what may be fairly expected in any city. The clinical data thus obtained are available for looking up either individual cases or classes of cases. Any case serious enough for hospital treatment is worthy of being subsequently followed. Indeed, it has been the so-called minor cases in which the greatest surprises in end results have occurred.

One of the most difficult steps in the work has been to convey to the patient the reason for the return. The majority of them come back for the first visit merely because they are asked to. The social ser-

vice worker finds that this lack of understanding is responsible for the failure of the majority of those able to return.

The factors working for success have been the obtaining of accurate addresses, particularly that of a friend having a fixed place of business, the giving to the patients of a clear understanding of the purposes of follow-up work, definiteness in appointments and directions, the demonstration of an interest in the patient as an individual rather than a "case," and a certain amount of despatch in handling the case when the patient returns for examination. One pleasing feature has been the recent referring of new patients by old ones "because they watch you so carefully afterward."

The results obtained by this method are surprising and most gratifying. Seventy per cent of returns has hitherto been regarded as fully justifying time and trouble taken in this study. As to the benefit accruing to both patients and staff there can be no question. Moreover, there is afforded by a study of these cases a true criterion by which ultimately may be judged the efficiency of each individual composing the staff.

INJURIES TO THE ANKLE.

With the more accurate diagnosis of fissures and breaks in the bone incident to better *x*-ray pictures, and with increased skill in their interpretation, has come a wider knowledge of the underlying lesions which account for the permanent crippling which too often follows such injuries about the ankle as we in former times called sprain, and treated as such. Even to-day there is a popular professional belief to the effect that fractures of the ankles are practically all of them Pott's fractures, or some modification of this injury, meaning by this term a tear of the internal lateral ligament, or a break of the inner malleolus with fracture involving the lower fifth of the fibula, allowing the foot to be displaced and rolled outward. There is too often, even in this injury, an unnoticed and untreated backward displacement of the foot accompanied by a breaking away of the inferior or inner posterior articular surface of the tibia and by a separation of the tibiofibular articulation.

The treatment of Pott's fracture lies in reduction of the displacement by carrying or rotating the foot inward, pulling it forward to correct the backward displacement, and in holding it in this position. An essential part of treatment when union is obtained and weight-bearing is allowed is that the inner surface of the sole be built up and the patient be instructed to toe forward until such time as the ligaments and muscles have regained a degree of strength and functional activity that assuredly prevents outward displacement.

The whole problem is a static one, the treatment being designed to restore the astragalus to such relation to the tibia that weight-bearing may be accomplished with the least degree of strain. A valgus, incident to inadequate replacement or retention, which develops later from early and unguarded use, is fatal to painless function, and the same may be said of uncorrected backward displacement. Indeed, any but the normal relation of the joint insures a permanently weak and painful ankle. After a foot injury, if a Pott's fracture or one of its modifications is excluded—nor is this difficult to do providing there be no such injury—the diagnosis of sprain is too often accepted and treatment adopted which almost inevitably leads to permanent and painful crippling. As a general rule any injury to the ankle incident to a twisting, levering, or crushing force, as from a high jump, for instance, is more than a sprain if it be followed by total disability, rapid and extensive swelling, and great pain. These symptoms are characteristic of bone injury, the swelling being due to the fact that bone bleeding, though slow, is persistent. This is also, in part, an explanation of the severe pain. Though not nearly so common as Pott's fracture, fracture of the astragalus is encountered sufficiently often to be worthy of careful consideration,

and is so habitually followed by lasting, painful disability that the proper recognition of the condition and its prompt treatment are matters of first importance.

Baudet (*Revue de Chirurgie,* Nos. 8-9, 1915) contributes a monograph on this subject from the historical, mechanical, and clinical sides, in which he points out that the fracture usually divides the astragalus transversely, forming anterior and posterior fragments. In accordance with the position of the break it is called fracture of the neck or fracture of the body. In fracture of the neck the line of break passes in front of the tibiotarsal articulation, and thereafter the callus resulting from healing is so placed as not to interfere with subsequent movements. In fracture of the body two articulations are involved. The tibiotarsal above, the astragalocalcaneal below and behind. Even after reduction there is danger of ankylosis. Moreover, in the great majority of cases it is complicated by a backward displacement of the posterior fragment. Concerning symptoms, if the neck of the astragalus be fractured without displacement the patient usually gives the history of falling from a height on his feet. He may remember that they were flexed. There is rapid and wide swelling involving the dorsum of the foot and the lower portion of the leg, filling the retromalleolar depressions. There is complete disability, and the whole foot is held in varus with a slight equinus. Careful examination fails to show bony deformity. Pressure immediately beneath the internal malleolus gives acute pain, though painful points are found throughout the swollen area, especially just in front of the astragalotibial articulation. When fracture of the neck is complicated by displacement the projecting bone is found in front of the astragalotibial joint. This deformity may present a simple projection or a true luxation of the anterior fragment. In fractures of the body similar symptoms exist, the foot is often subluxated anteriorly, and the projecting bone can be felt either in front or behind. The diagnosis is of course based on the careful use of the *x*-ray. Old fractures of the astragalus are characterized by partial or total ankylosis and bad position. The disability is likely to increase with use.

Baudet's paper deals largely with treatment. This lies in reduction, which must be controlled and modified by the *x*-ray. To be assured of a good joint, reduction must be extremely accurate. Thereafter immobilization for two to four weeks, and after this daily massage and passive movements; finally exercise and weight-bearing, the surveillance being continued for many months—indeed, more than a year is often required before these patients should be allowed to subject their joints to normal weight-bearing. Since the anterior fragment is often turned upon itself efforts at reduction may fail. As shown by eight cases reported in 1906 by Cabot and Finney, in six of these good function was not restored, and in two results are quoted by Baudet as being passable.

Where simple reduction is not accomplished as proven by *x*-ray pictures the open method is indicated, and if at all successful can be made absolutely accurate. At times it is unsuccessful. Partial or complete astragalectomy—*i.e.*, removal of the displaced head—has given results termed by the surgeon satisfactory. A total astragalectomy has apparently been followed by better results, but as a rule not by such as are entirely satisfactory to other than the surgeon, from which Baudet concludes that in all cases of fractured astragalus which cannot be satisfactorily reduced either by the closed method or through an incision, total astragalectomy is the method of choice, with a guarded prognosis as to ultimate function.

REPORTS ON THERAPEUTIC PROGRESS.

THE TREATMENT OF KALA-AZAR WITH TARTAR EMETIC.

MUIR in the *Indian Medical Gazette* for October, 1915, reminds us that in the *Tropical Diseases Bulletin* for April, 1915, there appeared a review of an article by G. Cristana and G. Caronia, who had successfully treated some cases of infantile kala-azar with tartar emetic after the publication by Gasper Vianna of cases of dermal leishmaniasis treated successfully with the same drug in South America.

Having at the time some cases of adult kala-azar, Muir at once began to treat them in the same way, and was surprised at the result. Indeed, with the exception of emetine in amebic dysentery he has never seen a specific work a more rapid and striking result in any disease. Up to the first week of August he treated twelve cases with tartar emetic, in nine of which the diagnosis was confirmed by finding the parasite in spleen punctures, and of these, with the exception of one who came in the very last stage, all have either recovered or are recovering.

The method of treatment is as follows: A one-per-cent solution is injected every second day intravenously. With a little experience this is done quite easily and practically painlessly, the smallest child even submitting to it without crying. Care has to be taken that none of the fluid escape into the subcutaneous tissues, otherwise a most painful swelling is produced. This can, however, be obviated by seeing that a thin stream of blood is running into the syringe before the piston is pushed home. The dose should begin with 4 Cc. and be increased each time by 1 Cc. up to 10, unless there are signs of nausea, when it should be decreased by 1 Cc. and then gradually increased again.

The writer has found, with the one exception mentioned above, that there is marked improvement after even the first injection, and after the second injection there is always a consuming appetite and the spleen is markedly decreased in size, while the color of the patient changes rapidly from a characteristic black color, which gives the name to the disease, to a normal color.

The writer still continues to use in conjunction with tartar emetic the turpentine intramuscular injection, which he used formerly alone, and finds that it increases the rate at which the spleen diminishes.

The turpentine injection consists of a solution of turpentine one part in camphor-creosote one part of each, and olive oil two and a half parts. Of this up to 10 minims is injected into the muscles of the back on either side of the body.

The writer has invariably noted that if such an injection is given to a patient at all advanced in the disease before the tartar emetic treatment is begun there is little or no reaction and swelling.

If, however, it is given after a week's treatment with tartar emetic, there is a very marked reaction, the part injected swelling and causing considerable pain. Spleen punctures taken at a week's interval show first marked diminution, and then complete disappearance of the parasites.

THE DANGERS OF ARTIFICIAL PNEUMOTHORAX.

WOODCOCK in an article in the *Edinburgh Medical Journal* for November, 1915, says we must consider certain dangers connected with this operation. These may be tabulated as follows:

1. Shock or irritation reflex—(*a*) as associated with every injury; (*b*) as a predominant symptom.

2. Injury to the lung by puncture, leading possibly to—(*a*) pneumothorax of the ordinary type; (*b*) hemorrhage; (*c*) embolism (gas or clot).

3. Injury to the lung by massive pressure from excess of gas in intrapleural space—(*a*) undue pressure on structures of the lung directly compressed (1) on alveoli, causing collapse of healthy tissue, and (2) on blood and lymph vessels, causing edema

of lung; (*b*) displacement of mediastinal contents; (*c*) pressure and loss of tonus of the other lung—a very important condition.

4. Inflammatory sequelæ to trauma of the tissue—(*a*) pneumonia; (*b*) pleurisy, with or without effusion; (*c*) septic infection of neighboring structures, mediastinal and parietal.

5. Excitation of disease elsewhere. Here overfunction of the other lung is referred to. This overfunction has no resultant ill effect if the septic cavities of the diseased lung are decreased in size, in which case both lungs are benefited.

From the experience gained in the Leeds hospitals the writer has come to believe that the mechanical danger of gas embolism has been much overestimated and unduly emphasized by continental writers and too readily echoed by our own. Shock has seemed the commoner mischance. He is not at all certain that the reflex is necessarily a pleurovagal cardiac reflex; it has seemed to be abdominal also. Many cases have been followed by diarrhea. In fact, shock is a central nervous exhaustion, and since the brain centers are disorganized, the shock is general. One lung injured may temporarily affect the other. The close connection between the tonus of the contents of the two cavities, thoracic and abdominal, only needs to be mentioned because it is so often forgotten. Abdominal tympanites in the later stages of pneumonia illustrates the relationship. The following experiment is of some interest:

At a post-mortem examination the writer tested the intrapleural pressure by penetrating the intrapleural space with a Saugman needle. The manometer registered a negative pressure of 1½ inches of water. He then opened the abdomen to a limited degree and tested the intestinal pressure with another needle and another manometer. This manometer showed a positive pressure of 2 inches of water—a positive fall. On freely puncturing the intestine and allowing gas to escape he observed an increase of negative pressure in the intrapleural space from 1½ inches of water to 3½ inches, while the positive pressure in the abdominal manometer disappeared. When the writer mentioned this matter to Dr. Gebbie he suggested a modification in the technique of artificial pneumothorax previous to operation—the use of an enema to empty the rectum, by which means hemoptysis cases might also be relieved.

Brauer and Spengler have collected the records of many fatal cases.

TOXICOLOGY OF EMETINE.

The *Journal of the American Medical Association* of November 13, 1915, points out that comparatively little has been added to our knowledge of the systemic actions of emetine in mammals during the past few years, and the descriptions in recent textbooks of its toxicology are much like those given by Lewin in 1888.

The following is based largely on the statements of Kunkel and von Jaksch:

Emetine is an active local irritant, causing inflammation, and even ulceration of the tissues with which it comes in contact in sufficient concentration. When powdered ipecac is handled, it may give rise to irritation of the eyes, and even ulceration of the cornea, and cause burning in the mouth and throat. The inhalation of the powder causes a sense of oppression in the chest and difficulty in respiration (so-called emetine asthma).

The application of an ointment containing emetine or ipecac causes irritation, progressing to pustulation with the continued application of strong preparations.

The subcutaneous injection of emetine causes pain, swelling, and even ulceration.

Emesis following the oral administration is generally attributed to the local irritant action on the gastric mucous membrane; if emesis fails to occur and emetine passes into the intestine, it gives rise to diarrhea, and this may be bloody, the latter effect being augmented by the extreme dilatation of the intestinal vessels. If absorption occurs, systemic effects follow.

The systemic effects observed after the entrance of emetine into the blood stream include general depression with failure of

respiration, due to paralysis of the center, and cardiac failure due to the direct action of the emetine on the heart and circulation. There is a profound fall of blood-pressure because of the cardiac and vascular effects.

The central nervous system undergoes rapid depression and paralysis even in the frog, which is not immediately killed by removal of the heart. Emetine stops the mammalian heart in diastole.

Alterations in the blood have been described; these are attributed to the accumulation of acid products of metabolism, but they are not responsible for the effects just described.

Kunkel describes the effects of from 50 to 100 mg. per kilogramme of body weight in the cat and dog, but the results of experiments performed in the laboratory of the writer (unpublished) show that as little as 2 mg. of emetine per kilogramme administered intravenously may cause general depression with weakened and accelerated heart and lowered blood-pressure. There is an apparent improvement after a short time, but usually these doses are fatal within forty-eight hours. The effects of the oral administration of emetine in solution are about like those seen after intravenous injection, but death may occur with general paralysis and cardiac failure within three minutes after the intravenous injection of large dose (15 mg. per kilogramme).

It is generally stated that emetine causes emesis only through its action on the gastric mucous membrane, but it also causes emesis after the intravenous injection into a dog from which the gastrointestinal tract has been removed; hence it is also capable of acting on the vomiting center directly.

One observer reported that vomiting, colic, abdominal cramp, and collapse occurred, followed by death within an hour and half after a patient had taken a large amount of wine of ipecac. Hyperemia of the stomach and duodenum were found at necropsy.

Several authors state that the toxicology of emetine is not very important, and von Jaksch states that the prognosis in case of poisoning by it is good. The diagnosis is made by finding the alkaloid in the vomitus.

Emetine is absorbed from the gastrointestinal tract when given in solution more readily than when administered in the form of a preparation of ipecac. Tannin, in the form of krameria, is recommended as the antidote in such cases.

The following observation of Kunkel is interesting in view of the date of his writing it and the use of emetine in hemoptysis at present. He says (1901) that it was formerly believed that emetine induced a specific anemia of the lungs, from which circumstance it was used in hemoptysis. He states that the belief probably arose from the observation that the pulmonary vessels of animals that had been killed with emetine were empty, which he explains as being due to the maximal dilatation of the vessels of the splanchnic area, with the consequent drainage of the pulmonary vessels.

This observation of Kunkel is at least worthy of attention at this time, in view of the fact that even small doses of emetine are capable of causing depression.

THE TREATMENT OF AMEBIC DYSENTERY.

In the *British Medical Journal* of November 13, 1915, Low tells us that since Rogers proposed the use of emetine for amebic dysentery he has treated many cases, both in private and in the Seamen's Hospital, by this drug, and the method of administration now given is therefore based on actual experience and is one that will be found useful and efficacious in actual practice. Other ways of giving the drug he has no doubt may prove equally successful—at any rate, in the hands of experts—but there are certain points that must be carefully followed if success is to be obtained.

Space will not permit a dissertation on all the varieties of dysentery met with. It is sufficient to say here that there are bacillary forms of the disease, protozoal forms, and helminthic. Of these the one termed amebic comes under the protozoal group, and is caused by a parasite termed the

Entamœba histolytica. The cases of dysentery that have recently reached England from the Dardanelles have, at least in the vast majority of cases, been bacillary,-or of some undetermined type, and certainly have not been amebic.

The administration of emetine to such is useless, as this drug is only specific for the form of dysentery caused by the Entamœba histolytica just mentioned, and by its improper use in cases not due to such parasites negative results are obtained, and the drug is brought into disrepute. The first thing to do in dealing with a case of dysentery is to determine its type, and for this purpose the feces must be carefully examined for protozoal and other parasites. To detect pathogenic amebæ is not difficult, at least to the expert, but there are pitfalls the unwary may easily fall into, especially if one has not had sufficient practice in examining stools. Lamblia cysts, blastocystis, vegetable cells, and desquamated cells from the bowels are easily mistaken, and such mistakes are serious, as they may condemn a patient to a long course of emetine for no purpose whatsoever. Still more difficult, at least in the vegetable stages of the parasites, is the distinction between Entamœba coli, a harmless ameba, and the E. histolytica, the harmful one. In the tropics and abroad generally the former is very common, and there is no reason why mixed infections with both should not occur. This distinction between the two lies in the hands of the expert, but the broad rule generally adopted now is, if a patient is passing blood and mucus—that is, has signs of definite dysentery and has amebæ present—the case may be looked upon as an amebic one and treated accordingly. Later on, when the case becomes chronic or passes into the stage of the true carrier, cysts appear, and these can be differentiated from each other by their size, and the number of their nuclei.

Having then diagnosed the case properly —a most important thing—the next thing is to treat it, and this is done by emetine hydrochloride in varying doses and amounts. The drug may be administered in one of three ways: (1) Intravenously; (2) subcutaneously or intramuscularly; or (3) by the mouth.

As regards intravenous injections, Low has had no occasion to use them, but there is no reason why they should not be employed in fulminating or in moribund cases where time is precious. The most usual method of administering emetine is subcutaneously or intramuscularly. Subcutaneous injections often give rise to a considerable amount of pain and stiffness, and to avoid this some give them deep into the muscles similarly to quinine. There seems to be an idiosyncrasy in some individuals, a man Low treated having considerable trouble—pain and stiffness—after his injections, whether they were given subcutaneously or intramuscularly. These symptoms did not disappear for several days, and in two injections given in the loose cellular tissue of the abdominal wall slight hemorrhages occurred as well as a considerable amount of redness at the site of the injection. This happened, though every care was taken to sterilize the skin, syringe, and needles, and the ampoules came from the usual source. At the same time as this two other patients had similar injections, both subcutaneously and intramuscularly, without the least trouble. The stiffness and pain in the case just mentioned definitely prevented the patient having full use of his arms for several days, and this possibility must be borne in mind in giving injections to people who are up and about. As a rule now Low gives the injections intramuscularly, avoiding giving a second one near a place where one has been previously given, until all signs have disappeared. Even with large doses no sickness is produced by the injections.

As regards giving the drug by mouth, the method has the disadvantage that sickness may be produced. Provided the drug is retained, however, it acts quite as efficiently as by injections, and Low knows of one case in which it did better. When administered by this route one gives it in keratin-coated tablets at night when the patient has gone to bed, taking the same precautions as

one used to do with the old ipecacuanha treatment. He has tried this method fairly extensively, and finds that one of three things happens: (1) Either the patient has no sickness at all, (2) he may be sick for a night or two and then get quite accustomed to the drug, or (3) it may make him sick every time.

In acute cases in bed injections are best. In chronic cases with slight local lesions that one does not wish to keep in bed, or for some reason finds it inconvenient to inject, then the mouth method may be employed.

Another objection has been raised to the keratin-coated tablets, and that is that they may not dissolve and may be passed unchanged per rectum. This has not been Low's experience, but it is a possibility. If there is any suspicion of it, as evidenced by the case not improving as it should, the stools can be washed and the tablets searched for.

The salt usually employed is emetine hydrochloride. Recently Low tried another preparation for Dr. Balfour, made by Burroughs, Wellcome & Co., named methyl emetine. Though larger doses of this can be employed, it does not seem to be any more efficient than the hydrochloride, but one would need to try it on further cases before deciding finally.

The dose of emetine hydrochloride Low now usually employs is 1 grain for each injection, two of these being given a day, morning and night, for the first two or three days if the case is a bad one with much blood, mucus, and pain; or if not, only once a day. After that one-grain injections are administered every night until a total of 12 grains in all have been given. By this time all blood and mucus should have disappeared from the stool, and amebæ should no longer occur. Not uncommonly about the fifth or sixth day of treatment a moderate degree of looseness of the bowels, or in some instances a definite diarrheic condition, is met with. This may be due to the emetine itself, similar to what one got and aimed at in the old ipecacuanha treatment, and it does no harm. After the cessation of the drug the stools become solid, of a normal consistence, and no blood or mucus is seen on their surface. They should be carefully searched for amebæ, and if these return or if the mucus and blood appear again a second course of emetine will be required. This does not, as a rule, require to be so prolonged as the first, and may be given in 1-grain doses every night until 6 grains in all have been taken. Third courses are practically never necessary. In Low's experience larger doses than those mentioned are not required. If all symptoms of dysentery have not disappeared by the time the 12 grains are taken, then the diagnosis is in all probability at fault, and the condition is due to some other cause than the entameba. With such doses toxic symptoms do not occur, but it is quite possible that if the drug is given in larger individual doses and kept up over long periods of time such might appear. As has been pointed out, there is no necessity for this, excessive doses not being required. The action of the drug on the vegetative or living stage of the amebæ is very rapid, the parasites quickly disappearing, as do also the blood and mucus, and other symptoms.

In addition to the emetine treatment, acute cases of dysentery are, of course, kept strictly in bed and on a strict diet. At first only milk or liquid diet in the shape of whey and weak soup is allowed; then, as the symptoms subside, milk puddings may be substituted, these in turn being followed by a further increase until pounded white fish and chicken are reached. No alcohol is permitted at any time. After treatment, during convalescence, and for at least four to six months afterwards, the patient must be kept on a simple white-meat diet with plenty of milk, no beef, coarse vegetables, curries, spices, alcohol, or things of that sort being allowed. In addition to diet, chills and wetting must be carefully guarded against. Relapses of amebic dysentery, even after very careful treatment, are frequent, and it is only by taking the greatest precautions and care that these may be avoided.

Often chronic cases of amebic dysentery present themselves for treatment. The symptoms depend upon the amount of bowel involved and the character of the lesions present. Blood and mucus to a certain extent are generally present in the stools, or all that may be found is some looseness of the bowels, with two or three actions a day, or slight diarrhea. In this latter type of case the only reason for suspecting dysentery is the presence of the specific parasite, often now in the cystic or resting stage. These cases act as true carriers and are dangerous to other people, the cysts being the infective agent that passes the disease on from one person to another. Such cases may require to be isolated. It has been stated that emetine has no effect upon the cysts and does not cause them to disappear. In a case Dr. Wenyon and the writer recently studied carefully this was not so. Injections of emetine in 1-grain doses daily quickly caused them to vanish, and they have not reappeared again up to date (some months later). The treatment of these chronic cases and carriers is the same as for the acute ones. It may not be necessary to confine them so strictly to bed or even to keep them in bed at all, but they should be put through a similar course of emetine and be dieted in exactly the same way. In addition to amebic manifestations of the bowel, the liver may be involved and an abscess may threaten to form. Here, again, emetine works in a most miraculous manner, and if applied in the doses mentioned above may completely abort all the symptoms. Since its introduction the chances of averting suppuration have increased enormously, and fewer cases of abscess of the liver now come to the operating table.

Though practically all cases of amebic dysentery respond quickly to emetine treatment, there is a small residuum—in which there has been no doubt of the correctness of the diagnosis—which does not, symptoms continuing, and amebæ, vegetative or cystic, being still found in the stools. Such cases require further careful study to explain this anomaly.

In all the stages of the treatment of the disease it is of fundamental importance that the stools should be carefully looked at every day. There is no other way really of being certain how the drug is acting unless this is done. Where obtainable, flat glass stool dishes will be found very useful. One can examine the feces then without removing the glass top and so avoid the horrible smell so many of these stools have. In addition to these macroscopic examinations, careful microscopic ones must also be carried out at least every second or third day.

TREATMENT WITH MIXED VACCINES.

In the *New York Medical Journal* of December 18, 1915, THIBAUDEAU writes upon this subject and concludes that:

1. The intravenous administration of phylacogen is followed by a prompt (about four hours) and marked leucocytosis, which is seen by making leucocyte determinations at two-hour intervals.

2. A considerable increase in the proportion of polymorphonuclear leucocytes is also noted by the same means; therefore, the actual number of the leucocytes (phagocytes) is markedly increased.

3. The intravenous administration of mixed vaccines in these cases promptly increased the opsonic index to the infecting microörganisms isolated from the patient, even when they were of two or more species.

4. These phenomena are usually (not always) synchronous with certain characteristic changes (rises) in the pulse, temperature, and blood-pressure, which are followed by a fall to normal or even subnormal.

5. Coincidental with the phenomena noted above was marked improvement in the clinical condition for which treatment had been instituted.

6. Mixed vaccines, in Thibaudeau's opinion, represent multiple antigens, their therapeutic efficiency being due to their ability to stimulate the formation of antibodies.

7. Their action resembles in a general way that of bacterial vaccines. The action, however, is more prompt (1, 2, and 3

above), owing probably to the elimination of the delay incident to the splitting of the bacterial cell, the metabolic products (bacterial derivatives) concerned in their action being immediately available. At the same time their action is probably not so permanent as that of the vaccines, because of their more rapid absorption.

A CHEMICAL AID IN SECURING THE SPIROCHETA PALLIDA FROM SYPHILITIC LESIONS.

LLOYD, in the *Boston Medical and Surgical Journal* of December 16, 1915, states that some four months ago in a short monograph he came across the statement that alcohol applied to any ulcerated specific lesion, either primary or secondary, increased greatly the number of recoveries of the spirocheta pallida. Since that time his method in the South Medical Department at the Massachusetts General Hospital has been the following:

First carefully clean the lesion, using water or salt solution, and then wash it with 95-per-cent alcohol. This is only slightly painful. Then by lateral pressure Lloyd almost always secured a most abundant supply of serum, presumably serum from the deeper layers; for since he has been applying alcohol to the primary lesion or the ulcerated secondary lesion his percentage of recoveries of the spirocheta pallida has averaged at least 95. It is impossible to say what the recoveries were before the use of alcohol, but he estimates them to be at least 20 or 25 per cent less.

RADIUM IN DERMATOLOGY.

In the *Journal-Lancet* of December 15, 1915, SWEITZER reports his clinical experience and concludes that:

1. Radium has a definite value in the treatment of certain skin conditions.

2. It is easily controlled, and is of accurate dosage.

3. Its application is unattended by pain, and is very pleasing to the patients, especially the young and the very old.

4. The cosmetic results are excellent.

THE PREVENTION AND TREATMENT OF RINGWORM AND FAVUS OF THE SCALP.

LANE in the *Journal of the American Medical Association* of November 13, 1915, reaches these conclusions:

1. The hair should be cut over the whole head, but it should not be shaved, as this would prevent effectual depilation. This is essential in all cases of favus and in all cases of ringworm, except those of very limited extent. In these the hair must be cut well around the edges of the affected area. The purpose of this cleanliness is prevention of the spread of the disease, easier discovery of new patches, and facilitation of the treatment.

2. When crusts are present they must be removed. This is best accomplished by soaking the head with oil for a day or two to soften them. Cottonseed oil, to which one per cent of betanaphthol has been added, serves the purpose admirably. The head is then washed with an antiseptic soap, for which the following formula may be used:

℞ Betanaphtholis, 3 parts;
Sulphuris præcipitati, 10 parts;
Saponis mollis, q. s. ad 100 parts.

3. Depilation is the most important as well as the most difficult and tedious part of the treatment, except when the Roentgen ray is used. The most satisfactory method of depilation is still that of the thumb forceps, although many easier and quicker methods have been tried. In extensive cases of favus, the whole head must be depilated and redepilated as fast as any hair grows, for at least three months. In early cases with small areas involved the depilation may be limited to the affected areas and a circumference of half an inch. In the case of ringworm, depilation of the patches cannot be completely accomplished, as many of the hairs are broken off and the rest are so fragile that they break when this is attempted. But all patches should be kept as completely depilated as possible, together with the surrounding area, as in the case of favus.

4. The value of antiseptic applications

lies in the destruction of the superficial fungi and in preventing the spread to other spots and to other individuals. They also serve the additional purpose, in the case of ringworm, of irritating and causing some inflammation in the affected areas, which facilitates the expulsion of the stumps of the broken hairs that cannot be pulled out. The affected areas are painted daily with:

℞ Tincturæ iodi, 20 parts;
Alcoholis, 80 parts;

and the following ointment applied to the whole head:

℞ Hydrargyri præcipitati, 1 part;
Sulphuris præcipitati, 1 part;
Resorcinol, 1 part;
Olei cadini, 10 parts;
Petrolati, 10 parts;
Adipis lanæ, 10 parts.

5. The head should be washed daily or every other day with the antiseptic soap for which the formula has been given. If crusts persist in forming they are softened and removed as often as necessary.

6. The following additional precautions should be taken: It is hardly necessary to say that individual toilet articles should be used. Keeping the hair cut short removes any necessity for the use of comb and brush. Affected children should sleep alone. Other children should not be allowed to wear the hats of the patients. The heads should be isolated as well as possible, and for this purpose there is nothing better than a tight-fitting cotton cap which can be boiled or thrown away when soiled. The scalps of persons affected with these diseases bear irritation remarkably well, and there is usually no occasion for interrupting the treatment. However, if the heads become sore from it, it is stopped for a few days, and petrolatum applied till it is resumed.

If these steps are carried out faithfully for a long enough period of time, the diseases will be cured and their spread pretty well limited. In extensive cases, the time necessary for cure is not likely to be less than two years, except in some of the rarer varieties of ringworm. When a case after vigorous treatment is apparently cured, treatment should be suspended for a month or six weeks. If there are no signs of recurrence at the end of that time, the patient should be examined occasionally for another six weeks before he is pronounced cured. If, in the meantime, any unhealed spots become visible, treatment should be at once resumed.

This is not an easy way to cure these diseases, but the more thoroughly it is realized that, with the exception of the Roentgen ray, there is no easy way of curing them, the better shall we take the precautions necessary for preventing their becoming so numerous as to present a serious problem.

The applications mentioned are no better and no more efficient than many others. They may be varied *ad libitum* with perfect confidence that many others are just as efficient in keeping the surface clean, and just as efficient for affecting the disease in the hair follicles.

The difficulties encountered in the treatment of ringworm have been well stated by Martin as follows:

1. The multiplicity of treatments proposed.
2. The confusion in the diagnosis of the different varieties.
3. The certainty of an ultimate spontaneous cure.
4. The depth of the anatomic seat of the lesion.
5. The difficulty of diagnosis, especially of an early diagnosis.
6. The difficulty of diagnosis of cure.
7. The difficulties of prophylaxis.

All of these difficulties are considerable in the case of ringworm, and for the most part equally so in the case of favus.

THE ALLEN TREATMENT IN DIABETES MELLITUS.

Writing in the *New York Medical Journal* of December 18, 1915, BOOKMAN asks, What are the practical results of this treatment? Do patients treated in this way live longer? The method is too recent for positive proof to be given on this point. Bookman's own conviction is that for severe

diabetics it is a great advance on previous methods of treatment. This is based on the results published by Allen and by Joslin and on his own experience, particularly with juvenile patients, of whom he has treated eight. Seven of them, at the time treatment was begun, were between fourteen and twenty-three years of age, the other patient being twenty-nine years old. All had been previously treated by various methods, and in none had glycosuria disappeared for more than a short time. Most of them had a marked acetone reaction and several had a decided ferric chloride reaction. On ordinary starch-free diet not quantitatively controlled they all excreted sugar. On the Allen treatment, glycosuria rapidly disappeared and remained absent for months, except for that caused by experimental additions to the diet. The ferric chloride reaction did not reappear as long as the patients were kept under observation. Two of them have a trifling acetonuria, and others have none. The amount of urine has diminished decidedly in all, though several still pass from two to three liters a day. Such complications as eczema, pruritus, furunculosis, and xanthoma disappear rapidly. All but one of these cases has been under observation for at least four months, most of them more than twice this time. In all there was a preliminary loss of weight. They have regained this and have even added to their original weight. They all feel stronger than before beginning treatment. Five of them are working.

The older patients have not been followed up to the same extent, but those still under observation are sugar-free and appear well with one exception. This is a woman of sixty years with by far the mildest diabetes of Bookman's series. After a short preliminary period she was put on a liberal diet containing 250 grammes of bread and over a pound of meat daily, with fat in such amount as she would take. She manifested pulmonary tuberculosis three months after beginning treatment, probably from a preëxisting focus.

For what cases should the Allen treatment be used? Bookman has had no cases of impending coma and cannot, therefore, speak of its effect in this condition. He would scarcely expect, however, anything beyond temporary improvement in the vast majority of cases which have reached this stage. With any method of treatment we shall continue to have deaths in coma. It is likely that the best means of combating this complication in its early stages will not be the same in every case. Both Doctor Allen and Doctor Joslin have reported deaths in coma. Most of these occurred in patients in whom treatment was not undertaken until premonitory symptoms of coma had appeared, or in patients who, when no longer under observation, had broken the dietetic rules. On the other hand, Allen has had patients with impending coma come in whom the treatment was satisfactorily carried out.

The treatment may therefore be used in all cases. In older persons who are passing small amounts of sugar and have little or no acidosis, less drastic measures will usually be preferred. In such patients the glycosuria will frequently disappear if sugar is abstained from or if, in addition, the starches are moderately restricted. In all other cases the treatment is advisable. It is especially indicated in all youthful diabetics, in all patients who are passing large amounts of acetone bodies, and in all those whom for any reason it is especially desired to make aglycosuric as quickly as possible.

It may be thought that special facilities are necessary for carrying out the treatment. In severe cases it is certainly desirable at the beginning to have patients under close observation, but successful treatment is perfectly feasible under the ordinary conditions of private practice. In the way of laboratory examinations only the usual tests for acetone, diacetic acid, and glucose are indispensable. The food can be weighed and prepared as well in the home as in the hospital. The patient must become familiar with the details of the treatment, and this knowledge can best be gained if the treatment is given at home. In six of Bookman's cases, treatment was insti-

tuted and followed up exclusively at the Mount Sinai Dispensary; this number includes one of his first cases, an Italian woman of twenty-nine years. During the entire treatment she has continued to look after her household of seven young children. Before treatment she had a sugar excretion of 400 grammes daily and a strong reaction for diacetic acid; she has now been sugar-free for several months without acetonuria and has gained thirty pounds in weight.

To sum up, then, Bookman's results agree with those obtained by Doctor Allen and by others who have worked with the method. The patients have rapidly become sugar-free and with few exceptions have improved in every way. The results in the juvenile cases are most convincing. In the management of severe diabetes, this method is a great step in advance. As a routine measure in all diabetics it brings excellent results and brings them quickly.

[For details as to the Allen method see the THERAPEUTIC GAZETTE, January, 1916.]

THE BACTERIN TREATMENT OF CERTAIN CHRONIC PYOGENIC DERMATOSES.

In the *Boston Medical and Surgical Journal* of December 16, 1915, DENNIE publishes tables of results and states that an examination of the tables gives, in a concise form, the following facts:

Sixty-four per cent of all cases treated by bacterins were apparently cured, twenty per cent were benefited, and sixteen per cent received no benefit whatever.

Autogenous bacterins were superior to stock, excepting in the treatment of furunculosis, where no difference could be seen.

In most cases a permanent cure resulted from the use of bacterins. This contention is supported by the fact that there were only two recurrences in those who reported at the end of one year.

In acne the best results were obtained in the indurated type. The comedo type responded less favorably.

Of the three pyogenic dermatoses, the best results were secured in furunculosis.

The action of bacterins in the treatment of sycosis was very erratic; in one case of twenty years' duration in which external treatment had been faithfully used for five years and in which stock bacterins had been administered, autogenous bacterins were used with remarkable success. On the other hand, two cases were very much aggravated by this form of treatment.

MANAGEMENT OF TOXIC GOITRE.

In the *Philadelphia Weekly Roster* of December 18, 1915, FRAZIER states his views as follows:

Toxic goitre may be either that which begins as simple goitre and becomes transformed into the toxic variety or the true exophthalmic goitre. The principal distinction to be made surgically is in reference to the severity of the case. The treatment of this condition belongs essentially to the domain of surgery. If the circumstances of a person suffering with moderate thyrotoxicosis are such as to render impracticable a prolonged period of rest, the writer strongly urges immediate operation and proceeds to the removal of as much of the offending gland as conditions indicate.

The mortality is insignificant; personally he has not lost one case of this type. In a grave form of intoxication the watchword is caution. It is out of the question to say what the order of procedure should be until after the patient has been under observation in bed for a few days, during which a study of the body functions and all the available secretions and fluids has been made. Each case presents its own problem as to whether it should be treated by boiling-water injections, ligation of one or more vessels at one or more sittings, or by partial thyroidectomy. A good working rule when in doubt is to err on the side of conservatism. A patient should not be operated upon in the stage of acute exacerbation. Rest is the most fruitful nonoperative measure. The writer has tried the *x*-rays and radium without appreciable effect.

In all operative cases anociassociation is employed routinely and successfully. Nitrous oxide anesthesia is always used. The relation of the thyroid to other ductless glands, especially the thymus, should not be overlooked. In 76 thyroidectomies for toxic goitre the writer has had no deaths, and in 24 ligations two deaths. He would not at this time consider such cases as the two fatal ones suitable for that particular operation at that cycle of the disease.

HEMORRHAGIC DISEASE OF THE NEW-BORN.

TALLANT says in the *Woman's Medical Journal* for December, 1915, that hemorrhagic disease of the new-born is still so baffling a condition that there may be value in reporting even a single case, such as the following:

Philip K. was born February 8, 1915, at the Maternity of the Woman's Medical College of Pennsylvania. The family history was good, and the mother, a primipara of twenty-three years, had a normal labor, with a second stage of only thirty minutes. The baby, although considerably cyanosed at birth, responded quickly to the usual slaps across the buttocks; he was particularly strong and hearty, weighing 8¾ pounds.

On the morning of the third day of his life an area of hemorrhage began to develop under the skin of the neck and upper chest, extending up under the left ear. This area was indurated and somewhat swollen. The baby was at once put on drop doses of adrenalin, and saturated solution of gelatin in drachm doses, with whisky as stimulation. The temperature was 100°, pulse 132, and respiration 34, but these rose rapidly through the day to 103.6°, 168, and 52, respectively. By evening the swollen area, while apparently receding slightly on the chest, had risen almost to the chin, and extended under the right ear as well as the left. A small hemorrhagic spot was found on the roof of the mouth, and a bowel movement showed a few streaks of red blood. By the next morning, although the area of the hemorrhage had spread no farther, the swelling had increased and was now so tense that the child lay with the head thrown far back, the occiput almost touching the back. Nursing was impossible, and even swallowing was very difficult. The baby was cyanosed and dyspneic from the pressure, and the muscles of its legs and arms were rigid. Three petechial spots were found on the back, and one on the left ankle, and there was slight oozing from the umbilical cord.

At the request of the hospital resident about two-thirds of an ampoule of coagulose was injected hypodermically at half-past two that afternoon. The child's condition showed little change, but no new areas of hemorrhage appeared. On the following morning, the third day of the disease, the temperature stood at 102.8°, and the baby showed no improvement, but no further extension of the trouble. The remainder of the contents of the ampoule was then given.

From that time on the symptoms began to abate. By midnight the temperature had come down to 100° and did not again go above that point; the petechial spots began to fade; the swelling under the chin slowly softened and became absorbed.

On February 17 (the ninth day of the baby's life, and the sixth since the onset of the disease), nursing was resumed and the baby began to gain; its weight had dropped to 7 pounds 6 ounces during its illness. On this same day a fresh hemorrhagic spot, the last one, was noticed on the sternum, and a rash came out over the body. The cord had separated the day before without any bleeding.

On the twelfth day of her puerperium the mother insisted on going home. The baby was now in fair condition; it was nursing well, and had gained three ounces; the rash had practically disappeared.

When the child was about seven weeks old the mother brought him to the hospital at our request. He was then as hearty and vigorous a baby as one could wish, and weighed nearly thirteen pounds. No trace of the hemorrhagic areas could be found.

SOME OBSERVATIONS ON THE TREATMENT OF DYSMENORRHEA.

In the *American Journal of Obstetrics* for December, 1915, BLOCK points out that atropine diminishes the irritability of the autonomic nerves, and after its administration there is a relaxation of the uterine musculature and a consequent disappearance of uterine colic. Stolper divides his dysmenorrhea patients into two groups: (1) those with normal or nearly normal blood-pressure, and (2) those with increased pressure. He states that the patients in the first group are usually benefited by atropine, while those in the second group are not at all helped by it. In this second group, after the pelvic circulation is properly regulated, the blood-pressure falls.

The atropine treatment has been tried with favorable results by Novak in Europe as well as by Novak in this country, who in a recent article says: "The results in thirty or more cases of spasmodic dysmenorrhea which I have treated with atropine have been very encouraging, so much so as to impel me to the further employment of the method." Block's own results in a limited number of cases have also been most satisfactory. The method of administration which he employs is to direct the patient to take 1/100 grain of atropine sulphate two or three times a day for two days before the expected period and continue it after the flow appears until relieved of symptoms. In addition to this or any other form of treatment, the proper attention must be paid to the lower intestinal tract and general personal hygiene, and he is heartily in accord with Mosher regarding general hygiene and exercises, although he has not the high degree of enthusiasm that he has over the results obtained from exercises *per se*, possibly due to his lack of experience with the method of treatment.

TABULAR CLASSIFICATION.

TYPE.	SYMPTOMS.	CAUSE.	TREATMENT.
Obstructive.....	Premenstrual uterine colic. Scant flow for one or two days. Pain disappears as flow becomes profuse.	Obstruction to lower uterine segment or vagina.	Removal of obstruction.
Ovarian.....	Bilateral ovarian pain synchronous in onset with the appearance of the flow; premenstrual headache and nausea. Uterine cramps after flow is established.	Increased ovarian secretion.	1. Intranasal treatment. 2. Hypodermic injections of adrenalin.
Vagotonic.....	Severe lower abdominal cramps and other symptoms suggestive of the obstructive type.	Increased irritability of the autonomic nervous system.	Large doses of atropine for a day or two before the expected period.

Block's object in presenting this paper is to make a plea for the careful differentiation of the various types of dysmenorrhea, and, having accomplished this, to give the patient the benefit of that method of treatment which has been shown to be of avail in the particular type from which she is suffering, and by so doing we may look for relief of symptoms in the large majority of cases. Let us hope that the promiscuous dilatation and curettage and the antidysmenorrhea proprietaries may soon be past history.

THE PROPER POSITION OF TONSILLECTOMY IN PEDIATRICS.

In the *Archives of Pediatrics* for November, 1915, BLUM makes these sane conclusions:

Tonsillectomy is an excellent surgical procedure in certain cases.

It should be the operation of choice in malignant disease of the tonsils.

It may be indicated in recurrent peritonsillar abscess.

It should not be performed in infants.

It should only in exceptional cases be performed before the eighth year; between the eighth and fourteenth years if possible

evidence of a serious local or systemic injury emanating from diseased tonsils can be adduced, and if the tonsillar affection does not yield to conservative treatment enucleation is indicated.

THE TREATMENT OF INFANTILE BERIBERI.

In the *China Medical Journal* for November, 1915, ALBERT reminds us that following the theory of "avitaminosis" and drawing their conclusions from the prophylactic and curative actions of the extract of tiqui-tiqui on "polyneuritis gallinarum," Chamberlain and Vedder, of the United States army board for the study of tropical diseases, in February, 1912, recommended the use of the extract in the treatment of infantile beriberi without the discontinuance of the maternal feeding, thus avoiding the dangers of artificial feeding. The method of preparation of this extract is fully described in this paper. Five cubic centimeters of the extract thus prepared represent about 82 grammes of rice polishings. The dose prescribed by them was 5 cubic centimeters of the extract a day, given in 20-drop doses every two hours while the child is awake.

Albert has had the opportunity of using this extract in a great many cases of infantile beriberi, from the year 1912 to the present date, and he believes that this medicine is of immense value in the treatment of the disease in question and that it is excelled by no other drug known at the present time. His distinguished colleagues of Manila, Doctors Calderon, Quintos, Luis and Manuel Guerrero, Valdes, Gabriel, and others, are of the same opinion.

Because of these astonishing results, both the committee for the investigation of infant mortality and the Segunda Asamblea Regional de Medicos y Farmaceuticos have requested the Philippine Legislature to adopt measures so that this extract may be distributed freely to the poorer class. As a result of this request the Philippine Legislature in February, 1914, passed Bill No. 2376 providing the sum of 6000 pesos for the preparation and free distribution of the extract of tiqui-tiqui. The bill also provides that the Liga Nacional Filipina para la Proteccion de la Infancia will superintend the preparation and experimentation, will look after the free distribution of the extract among the poorer class, and will present a written report of the results of their experiments, through the Secretary of Public Instruction, at the beginning of each regular session.

Although the time that has elapsed since the first experiments were made is not long enough to permit Albert to draw definite conclusions, his opinion with regard to this extract is very favorable. The administration of the extract when given in time and in convenient doses is followed at once by marked improvement. At the end of twenty-four hours the vomiting, whining, restlessness, insomnia, dysphagia, polypnea, and oliguria all disappear as if by magic. To the great surprise of the young physician the clinical syndromes change in aspect in a very short time, and at the end of three days one can say that the disease has disappeared, at least externally, leaving the aphonia, which in its turn disappears by the end of the seventh or eighth week. (Albert has attended a case in which the aphonia lasted for about eight months.) If no improvement follows after twenty-four hours, or if the case under treatment is of great severity, Albert obtains the desired effect by doubling the dose. It is better to give larger than smaller doses. The extract is inoffensive and entirely uninjurious, save for a slight diarrhea which follows its administration. With the method of giving large doses to acute cases they have in practice saved from sure death many cases of beriberi of the pernicious larval type, which formerly were believed to be hopeless and incurable.

The administration of the extract must be continued as long as the aphonia persists. So long as the voice has not recovered its normal pitch, the infant is constantly threatened by an acute attack which may terminate in death in a few hours. In cases of infantile beriberi without aphonia, it is

wise to prolong the treatment at least three weeks after apparent cure, to avoid relapses which frequently occur. It is necessary to impress upon the mother the importance of prolonging the treatment, as it is the tendency, in private practice, to discontinue treatment as soon as the acute symptoms disappear.

The failure of the extract to effect a cure may be due to many causes:

1. Extreme severity of the case—a very advanced neuritis. Vedder and Clark, in their work on polyneuritis gallinarum, have shown that symptoms appear only when the anatomic lesions in the nerves are well advanced. It is the same with infantile beriberi. It is not infrequent that mothers bring their children when the disease is far advanced. Therefore it is necessary to give the extract early in the disease in order that the treatment be successful.

2. The extract proves ineffective also in cases associated with other infections, commonly pneumococcic in the form of bronchopneumonia, which is a frequent complication of infantile beriberi.

3. Another cause of failure of the extract is its poor quality. It has either an insufficient quantity of the active principle or an excess of alcohol which makes its ingestion disagreeable and injurious. Analyses made by the Bureau of Science of the extract prepared by the local drug stores revealed the fact that all the samples with the exception of one from one drug store were very deficient in the active principle. This was why treatment with extracts of tiqui-tiqui obtained from this drug store were the most successful.

The interpretation of the curative action of the extract of tiqui-tiqui is not a hard task. Hirota's theory of intoxication can be discarded. It does not explain why the beriberic child treated with tiqui-tiqui extract improves and gets well even without discontinuing the maternal nursing. The extract has no antitoxic properties and, therefore, it cannot be said that it neutralizes the toxic action of the breast milk.

Knowing the prophylactic and curative actions of the extract in polyneuritis gallinarum, which is caused by a deficiency in the diet, we must admit that this extract supplies the beriberic infant with nutritive elements, probably the vitamines, in which the beriberic milk is found deficient.

According to Funk these vitamines play an important rôle in the metabolism, as do the hormones, ferments, and internal secretions.

Bearing in mind that infantile beriberi under a clinical aspect is principally a vagotonia—an abnormal irritability of the vagus—it is logical to believe that the curative action of the extract is due to the fact that it supplies the vagus with the necessary vitamines for the normal performance of its functions. Using the words of Eppinger and Hess, we can say that the extract of tiqui-tiqui is a vegotropic drug, like pilocarpine, which has a selective and specific action on the vagus nerve.

But supplying the vagus with its much-needed vitamines, its abnormal irritability, manifested by vomiting, by angina pectoris (whining and restlessness), and by polypnea because of its bronchial and pulmonary terminations, entirely disappears.

The failure of the extract to cure the aphonia can be attributed to a very advanced degenerative neuritis of the recurrent branches of the vagus nerve, which are the first to be affected in all cases of dietetic deficiency, as evidenced by the clinical fact that the aphonic form constitutes from 80 to 90 per cent of all cases of infantile beriberi.

TREATMENT OF VAGINAL DISCHARGE.

In the *New York State Journal of Medicine* for December, 1915, CHANDLER says that the treatment for this condition, outside of general tonic treatment, usually consists in giving the patient some kind of a douche containing carbolic acid, bichloride of mercury, lysol, etc., or a series of tampon treatments with boroglyceride, ichthyol, or the like. As chief of the out-patient gynecological department of one of the large New York hospitals some years ago, and in similar work elsewhere, Chandler has had

considerable opportunity to try these various treatments, and in his own hands has found them, in the majority of cases, very unsatisfactory.

In consulting the later text-books he finds nothing new on the subject, but only the stereotyped treatment which has been in use for years and to which every author attributes but indifferent results. Except in the case of acute gonorrhea, he therefore adopted a dry method of treating these discharges, and had such satisfactory results that he has made it a routine procedure.

With the patient in the dorsal position on table or chair, with good light, a narrow, long bivalve speculum is inserted and the vagina and cervix carefully wiped with cotton. If adenomatous disease of the cervix and granulations or retention cysts are present (and they usually are), Chandler curettes the granulations, incises the cysts, and then treats the cervix as follows:

Pure carbolic acid on cotton about a probe is inserted in the cervical canal through its entire length, being careful not to enter the uterine cavity, however.

The vagina is then painted in its entirety with a ½-per-cent solution of tincture of iodine. The entire surface can be reached by turning the speculum about and painting the folds as they protrude between the blades. Immediately enough plain sterile gauze is packed all about the cervix and in the vagina to fill it comfortably, and far enough above the urethra to avoid soiling by the urine.

If the mucous membrane looks healthful, he repeats this iodine and carbolic acid treatment three or four times, at intervals of forty-eight hours. After that he dusts the vaginal surfaces with a powder composed of equal parts of boracic acid and stearate of zinc and then packs with dry sterile gauze. This procedure is repeated three or four times at forty-eight-hour intervals like the other.

The gauze should never be left longer than forty-eight hours on account of fermentation and the attendant irritation to the mucous membrane, which would defeat the object of the treatment.

It sometimes happens, where the mucous membrane is particularly sensitive, that on removal of the gauze after the first forty-eight hours a number of slight excoriations will be found on the vaginal surface. In such cases, instead of going on with the iodine treatment, Chandler uses the zinc and boracic acid treatment the second time. In other words, he alternates the two treatments, always finishing with the zinc and boracic acid.

The patient is then told to come after her next menstrual period and report. This treatment should always be begun a few days after menstruation, so that there will be time for its completion between periods.

In the majority of cases they return with the cheering news that the leucorrhea has disappeared. Sometimes a couple of months later he has had a patient return, saying that the discharge was reappearing. One treatment of carbolic acid and iodine, followed in forty-eight hours by the zinc and boracic acid as described, will usually be enough to complete the cure.

Clinically, Chandler believes that as a cleansing media water should be used as a douche, but no medication other than salt or bicarbonate soda should be allowed in it. Carbolic acid does not dissolve well and a rather concentrated solution will usually be the last to leave the douche-bag, tending to aggravate the trouble.

During the last year he has treated a large number of such cases with surprisingly good results, and the fact that women are constantly presenting themselves at his office, saying they have been sent by those already benefited, leads him to believe that the treatment is worth presenting for consideration.

This treatment is also efficacious in gonorrhea of long standing. In acute vaginitis due to the presence of the gonococcus, the patient is put to bed and the vagina is packed lightly with sterile gauze in which the dry boracic acid powder has been incorporated. A urinary antiseptic, such as urotropin, is administered, light diet prescribed with plenty of fluids by mouth, the gauze is removed each day, and after

the acute stages have subsided the dry iodine treatment as before advocated is followed out.

In all chronic vaginal discharges local treatment must, of course, be supplemented with supportive treatment. Constipation must be corrected by the establishment of habit and the use of mild laxatives. This is very important.

Where there is anemia, small doses of iron long continued are more efficacious than the large doses we used to give.

The right kind of food, exercise, and later a change of climate are enjoined.

In gonorrheal vaginitis of children the foregoing is not indicated. Local treatment is of no avail in these cases, and the trouble is most successfully combated by the use of vaccines.

In conclusion Chandler says that he is firmly convinced that douches and the usual moist tampons do not cure leucorrhea. While they have a tendency to alleviate for the time being, they certainly irritate and eventually provoke the very conditions we are trying to cure.

Why is it not rational to treat the vagina along the same advancing lines followed in modern surgery as shown in the care of wounds? The use of water is now practically eliminated from all inflamed surfaces. Wounds and cavities are kept dry and clean with possibly the use of a mild antiseptic. Following out this same line of treatment for vaginal discharge is only keeping pace with the advancement of surgery toward a scientific simplicity and a more perfect asepsis.

COMBINED VACCINATIONS.

In the *Indian Medical Gazette* for November, 1915, CASTELLANI concludes that:

1. The preparation of combined vaccines is based on the experimental work he carried out in 1901-1902 in Professor Kruse's Institute, when he demonstrated that, inoculating an animal with three species of bacteria, provided a sufficient minimum quantity was given, agglutinins and immune bodies for all three species were elaborated, the amount of agglutinins and immune bodies elaborated for each being nearly the same as in animals respectively inoculated with one species only.

2. In the lower animals he has used (rabbits) no good results are obtained as a rule by inoculating more than three species of bacteria. In man it appears that four species can be inoculated with satisfactory results, and occasionally even more.

3. He has prepared and used in man the following vaccines:

(1) Typhoid+paratyphoid A+paratyphoid B.
(2) Typhoid+Malta fever.
(3) Typhoid+paratyphoid A+paratyphoid B+Malta fever.
(4) Typhoid+paratyphoid A+paratyphoid B+b. Asiaticus+b. Columbenis.
(5) Typhoid+paratyphoid A+paratyphoid B+b. Asiaticus+b. Columbenis+Malta fever.
(6) Typhoid+paratyphoid A+paratyphoid B+dysentery Kruse-Shiga+dysentery Flexner+dysentery Hys. Y.+dysentery Flexner-like No. 1+dysentery Flexner-like No. 2.
(7) Cholera+plague.
(8) Cholera+typhoid+paratyphoid A+paratyphoid B.
(9) Cholera+typhoid+paratyphoid A+paratyphoid B+Malta fever.
(10) Cholera+plague + typhoid + paratyphoid A+paratyphoid B.
(11) Cholera+plague + typhoid + paratyphoid A+paratyphoid B+Malta fever.

4. The inoculation in man of the above combined vaccines is harmless. The reaction is not very severe, with the exception of those containing plague, such as "cholera +plague" and "cholera+plague+typhoid paratyphoid A+paratyphoid B" vaccines. These give a more severe reaction than Lustig's simple plague vaccine, but apparently less than Haffkine's simple plague vaccine.

5. The combined vaccines Castellani is now using consist of carbolized emulsions of agar cultures in normal salt solution without heating. These emulsions seem to give a less painful local reaction than broth cultures killed by heat. The presence of 0.5-per-cent carbolic acid is sufficient to kill the germs. The "typhoid+paratyphoid A +paratyphoid B" vaccine is, however, also prepared by heating broth cultures at 53° C.

6. The individuals inoculated with the

above mentioned vaccines, consisting of 2, 3, and 4 species of bacteria, generally produce agglutinins for each species of bacteria inoculated, and the amount is not much less than in control individuals inoculated with simple "one-disease" vaccines. As regards vaccines consisting of more than four species, some seem to induce production of a fair amount of agglutinins for all the species, others do not give such satisfactory results, agglutinins developing only for certain species and not for all.

7. The combined vaccines which Castellani has found most useful from a practical point of view are the "typhoid+paratyphoid A+paratyphoid B" prepared and used by him since 1905: the "cholera+plague vaccine," the "typhoid+paratyphoid A + paratyphoid B + Malta fever," the "typhoid+paratyphoid A+paratyphoid B+cholera."

8. The use of efficient mixed vaccines is of practical advantage, as it is in this way possible to give a certain degree of contemporaneous immunity for several different maladies. This procedure saves a great deal of time and trouble. Moreover, in his experience very few people will submit themselves to the discomfort of repeated injections, which would extend over a period of several weeks, in order to be inoculated against three or four different diseases.

THE NITROGEN BALANCE IN DIABETES MELLITUS AND ITS IMPORTANCE IN TREATMENT.

In the *Lancet* of November 27, 1915, CAMMIDGE states it has long been recognized that the essential feature of diabetes mellitus is a failure of carbohydrate metabolism, with the consequent presence of sugar in the urine. As the metabolic changes have been more thoroughly and completely investigated it has been increasingly apparent, however, that a simple defect in the utilization of carbohydrates is comparatively rare and that there is usually more or less interference with the utilization of fats and proteins as well. These defects are relatively slight in some instances, while in others they are prominent and constitute the most serious feature of the case; but it is obvious that if the maximum benefit is to be derived from the dietetic treatment of the condition all deviations from the normal must be taken into account, otherwise a diet may be prescribed which in the end will do more harm than good. The failure of a "carbohydrate-free" diet to control the disease, or even to check the glycosuria in some cases, is thus frequently accounted for, since it attempts to deal with only one feature of the case, the defective utilization of carbohydrates, and neglects other possible deficiencies in metabolism.

With the discovery of the acetone bodies, and the realization of their significance as a sign of faulty fat metabolism, an important advance was made on Rollo's plan of excluding carbohydrates as much as possible from the diet in all cases of glycosuria, and it is now common knowledge that the persistent presence of acetone bodies in the urine is an indication that an ordinary "strict diet" cannot be tolerated. The occurrence of defects in the utilization of proteins and the results of increasing the protein content of the diet beyond the patient's powers of dealing with them efficiently are, unfortunately, not so well known, although they are equally important. One reason for this neglect undoubtedly is that the products of imperfect protein metabolism cannot be recognized in the urine by an easily applied color-test like sugar, acetone, or aceto-acetic acid, but are only to be detected by making a series of quantitative analyses of the collected and measured twenty-four hours' excretion when the patient is on a diet of known composition. As a similar series is needed for the accurate determination of the carbohydrate tolerance of the case, it only entails a little extra work on the part of the observer.

In a healthy individual the total urinary nitrogen is practically equal to the amount ingested, barring the small extra-renal excretion in the feces, perspiration, hair, and nails, which averages about 1 gramme daily. The level of nitrogenous equilibrium

varies with the character of the diet, although there is always a tendency to establish a correspondence between the intake and the output in spite of wide variations in the nature of the food. A similar tendency is seen in diabetics, but their powers of adaptation are diminished, and in advanced cases may be very defective. A highly protein diet raises the output of nitrogen in the urine as in a healthy person, but the increase is often out of proportion to the intake and remains so, or even tends to increase, as long as the excess is continued. A diminution of the protein, on the other hand, will frequently bring down an excessive excretion of nitrogen in the urine more than can be accounted for by the lessened intake of nitrogen in the food. This probably is to be accounted for by an increased susceptibility of the diabetic to the specific dynamic effect of protein, with a consequent tendency to abnormal tissue waste, owing to the defective utilization of carbohydrates.

The addition of protein foods to the diet of diabetics frequently fails, therefore, to accomplish its aim, and instead of improving nutrition only raises the level of metabolism and promotes tissue waste. In cases in which the utilization of sugar is very defective an increase in the glycosuria also results and the excretion of oxybutyric acid and acetone bodies rapidly rises, owing to the inability of the tissues to oxidize the sugar and fatty acids derived from the non-nitrogenous portion of the amino-acids formed from the ingested and broken-down tissue proteins.

The prognosis in a case in which the output of nitrogen in the urine regularly exceeds the intake in the food is always serious, for unless nitrogenous equilibrium can be established loss of weight and strength must continue, while the tendency will be for the glycosuria and acidosis to increase. Systematic reduction of the protein intake, guided by daily analyses of the urine, often suffices to control the condition, but rest in bed, with freedom from excitement and worry, is sometimes also necessary. The free use of opiates may be required occasionally. In Cammidge's own practice he now very rarely uses preparations of opium except in severe cases in which nitrogenous equilibrium cannot be established by any other means.

WHAT STOMACH SYMPTOMS JUSTIFY SURGICAL INTERVENTION.

TINKER in the *New York State Journal of Medicine* for December, 1915, states that a study of the results of the most experienced workers in this field leads to the conclusion that surgical intervention is justified in a large number of cases on the basis of a carefully taken history alone. When the history brings out repeated attacks of indigestion with intervals of good health, severe epigastric pain, frequent vomiting, hunger pain and relief by taking food, unrelieved by a reasonable number of weeks of medical treatment, operation seems justified. If, in addition to this, the *x*-ray shows delay in emptying the stomach from partial obstruction, deposit of bismuth in chronic perforated ulcer or great irregularity in stomach contour, the indication seems still stronger. If gastric contents analysis shows hyperacidity in ulcer cases or absence of free hydrochloric acid with lactic acid in cancer cases, this is also strongly confirmatory evidence. Blood, though not so frequently present, either vomited or obtained microscopically or shown as occult blood in the stools, is also valuable evidence.

While it may be impossible to arrive at a definite diagnosis in many of these cases, it is almost always possible, Tinker believes, to say that serious trouble is present inside the abdomen, and the symptoms are of sufficient gravity to justify surgical intervention. Almost always it will be possible to determine with some degree of certainty whether the stomach and duodenum are at fault or whether the stomach symptoms are caused by lesions elsewhere in the abdomen. All modern means of diagnosis should be employed and the lesion located as definitely as possible so that in the majority of cases the operation is not really exploratory, but

we may be able to attack the lesion causing the symptoms without undue handling of the intestines or manipulation inside the abdominal cavity.

METHYLENE BLUE IN THE TREATMENT OF "FLAGELLATE-DIARRHEA" AND OF KALA-AZAR.

CASTELLANI in the *British Medical Journal* of November 27, 1915, recalls that several authors have recently called attention in the *British Medical Journal* to the presence of flagellates in cases of diarrhea, and discussed their etiological rôle. When present in a small number such flagellates are probably harmless. In the tropics they are found in the stools of more than 25 per cent of apparently healthy persons after a saline purge. When present, however, in enormous numbers, as in the two cases Castellani published in the *British Medical Journal* of November 11, 1905, the probabilities are that they play a part in the causation of the intestinal symptoms.

He can confirm Low, Wenyon, Ledingham, and Penfold's experience that ipecacuanha and emetine have no effect on such parasites. He recommends instead the use of methylene blue. This drug has a powerful effect on flagellates. Castellani quotes a paragraph from his paper on the resistance of the intestinal flagellates to various chemical substances:

"The action of different chemicals on the parasites was tried repeatedly. Without referring in particular to all the experiments made, I may say that methylene blue solutions are without doubt the most active—much more so for instance than quinine solutions. Mixing one loopful of the stools with one loopful of 1-in-1000 solution of methylene blue and observing the preparation microscopically, the flagellates (Trichomonata and Cercomonata) are seen to take up the color, and stop almost instantly their movements, losing their ordinary shape and becoming globular without exhibiting any flagella or undulating membrane."

Castellani gives methylene blue by the mouth, in cachets containing 2 or 3 grains of the drug, three times a day, and also by intestinal irrigation (1 in 5000 or 1 in 3000). The patient must be informed that his stools and urine will become blue. The treatment has induced in most of his cases a rapid decrease or complete disappearance of the flagellates within a very few days. In a few obstinate cases the administration of the drug may have to be persisted in for a long period of time. In such a contingency the methylene blue should be discontinued from time to time to prevent the formation of methylene blue concretions in the intestine.

ALOPECIA AND ITS TREATMENT.

Writing in the *Practitioner* for December, 1915, SIBLEY says that before attempting to treat any case of baldness a definite diagnosis of the pathology must be made out, or time and labor will be wasted and much harm may result. For instance, if a scalp, the condition of which is obviously an inflammatory one, be treated with stimulating or irritating applications, the process will be greatly aggravated, and much permanent harm may ensue.

If, on the other hand, the scalp is one which is pale and anemic without any obvious naked-eye pathological changes, and an ordinary sedative be applied to the scalp, the condition cannot be improved, and valuable time may be lost, for there is no doubt it is much easier to arrest a commencing baldness than it is to restore the growth of hair which has once been lost.

The treatment, in the majority of cases of baldness in young people, resolves itself into the effective and scientific treatment of seborrhea capitis. First arrest then cure the seborrhea, and if this is not of too old standing a regrowth of hair will occur.

The seborrheic scalp should be washed as soon as much scurf has collected, generally not more frequently than once a week. The best shampoo is one consisting of equal parts of soft soap and spirit. If the scalp is very inflamed and sensitive, Parke, Davis & Company's extract of soap-bark (quillaia saponaria) is a useful substitute for a spirit soap solution.

The following are the drugs most frequently prescribed: euresol, hydrocyanic acid, ichthyol, lead, lysol, mercurial preparations, quinine, resorcin, salicylic acid, sulphur, and tar. Of these, resorcin will generally be found to be the most efficacious in a 2-per-cent solution. It is freely soluble in water, and should be rubbed into the whole scalp once a day. Even in a 2-per-cent solution, especially if it has been made some time, it will have a slight staining effect on fair or white hair. In these cases, euresol, which, however, is insoluble in water and requires spirit to dissolve it, may be substituted.

If a resorcin lotion is being used, care must always be taken that no alkaline preparations, such as alkaline soaps, are applied to the scalp, or a considerable dyeing of the hair will ensue. If it is desirable to add an oil to the preparation used, some tincture of soap-bark (tinct. quillaia) and not an ordinary soap should be used, such as:

℞ Resorcini, gr. x;
Ol. ricini, min. xxx;
Tinct. quillaiæ, min. xv;
Aquæ rosæ, f℥j.

Of the tarry preparations, liquid carbonis detergens for a watery, and oil of cade for an oily, preparation will be found the most useful:

℞ Ol. cadini,
Sp. rectif., ää min. x-lx;
Paraffin. liquid., q.s. ad f℥j.

If the scalp is red and inflammatory, the following are useful prescriptions:

℞ Liq. carbonis deterg., min. xx;
Acid. hydrocyan. dil., min. v;
Glycerini, min. x;
Aquam rosam, q.s. ad f℥j.

Or,

℞ Liq. plumbi subacet. fort., min. x;
Liq. carb. deterg., min. xv;
Glycerini, min. xxx;
Aquam rosam, q.s. ad f℥j.

Salicylic acid, a most useful preparation in seborrhea, is insoluble in water, and requires a considerable amount of spirit to dissolve it, but in cases of an oily seborrhea it is very beneficial.

Sulphur, another favorite preparation for seborrheic conditions, can only be applied in a lotion in suspension. Ichthyol is soluble in water, and may be substituted; its color and odor, however, are objectionable. Thiol and thigenol are also useful for lotions.

Having cured the seborrhea, a more stimulating preparation may be substituted, the condition of the scalp being carefully watched from time to time to determine the recurrence of any early signs of seborrhea, when the stimulating applications must at once be stopped. The following are the preparations most commonly prescribed as excitants or stimulants of hair growth:

Ammonia, cantharides, carbolic acid, chrysarobin, formalin, and lysol. Of these, lysol, in from 1- to 10-per-cent solution, will be found the most efficacious, if the objection to its odor, which is difficult to disguise, is not insuperable.

When it is realized that the morbid process occurs not on the surface of the skin, but in the sebaceous glands and hair follicles, and that no medicinal preparation, as applied in the form of a lotion or ointment, is absorbed by the skin, and that even the powers of penetration of a liquid application are very limited, a comparative failure in many cases of any of the above remedies is easily understood.

OBSERVATIONS UPON THE ETIOLOGY AND TREATMENT OF HEART DISEASE.

In the *Louisville Monthly Journal of Medicine and Surgery* for December, 1915, WHITE of Boston reaches these conclusions:

1. The male sex has been found to be more subject to auricular fibrillation, auricular flutter, heart block, and alternation of the pulse than has the female sex.

2. The older the patient with heart disease the more subject he has been found to be to serious abnormalities of the heart-beat.

3. Auricular fibrillation and alternation of the pulse occur at the same ages, most frequently in the fifth and sixth decade.

4. Rheumatic hearts usually show normal

mechanism or auricular fibrillation, much less commonly pulsus alternans.

5. A considerable percentage (36) of syphilitic hearts show alternation of the pulse; few were fibrillating.

6. A patient with cardiac insufficiency in the course of cardiorenal disease is very apt to show pulsus alternans, either constant or more frequently after ventricular premature beats.

7. Cardiosclerosis often results in the production of fibrillation and alternation.

8. Hyperthyroidism of long standing is sometimes attended by auricular fibrillation.

9. Alcohol, tobacco, tea, and coffee appear to play no direct part in the production of serious disorders of the heart-beat.

10. Two-thirds of the patients with auricular fibrillation, one-half of those with alternation of the pulse, and one-third of those with normal mechanism in his series, showed physical signs of cardiac insufficiency.

11. Digitalis was used in 88 per cent of these decompensated cases, almost always in the form of pills of standardized leaves. Intravenous medication was used in urgent cases only.

12. Morphine was given beneficially in nearly one-half of these patients with physical signs of insufficiency, often one dose sufficing to give the patient the first comfortable night in weeks.

13. Venesection was found useful in a few urgent cases.

14. The change in diet to five small meals daily was often much appreciated by the patient.

THE TOXICITY OF EMETINE.

In the *Journal of the Royal Army Medical Corps* for January, 1916, BALFOUR and PYMAN state that medical officers treating cases of amebic dysentery with emetine will do well to remember:

1. That emetine is a very costly drug.

2. That if it is going to do good its beneficial action is generally quickly apparent.

3. That it is useless, unwise, and wasteful to subject patients to repeated, long-continued courses of the drug. They know very little about the possible cumulative effect of emetine. There may be none, but in any case two short courses of the drug in appropriate doses will usually suffice to cure a case of amebic dysentery. This would necessitate a primary administration in all of from ten to fifteen grains, and accords with the experience of Low in his recent article on the treatment of amebic dysentery.

4. That emetine may itself produce and keep up a certain degree of diarrhea from that caused by intestinal disease.

THE PROBLEMS OF NEPHRITIS FROM THE CLINICAL STANDPOINT.

In the *American Journal of the Medical Sciences* for December, 1915, ELLIOTT states that the history of diet therapy in nephritis is dominated by the principle of protein restriction. Modern research during the past twenty years has borne particularly on the mechanism and consequence of retention in nephritis, and the idea of sparing the kidney has been the first rule in diet. In acute nephritis, and during the acute inflammatory exacerbations of chronic nephritis, a large protein intake is undoubtedly unphysiological and exercises an unfavorable influence. During the stormy but relatively short session of acute nephritis the eliminative functions of the kidney are carried on with difficulty, the renal filter at times refusing even to pass water through it. Attention should consequently be concentrated on the diseased organ, and until convalescence is established, low food intake, even at times to the point of starvation, will best serve the interest of the patient. In such cases for the period necessary the nutritive problem may be submerged in the imperative needs of the choked and irritated kidneys.

In chronic nephritis we are compelled to keep the general condition of the patient more in view. Granting the clinical justification of the protein conservatism in the diet therapy of chronic nephritis, it is probable, speaking generally, that its severity

and duration are much less influenced by manipulation of the protein ration than is commonly supposed. Our efforts in this direction have hitherto been governed by empiricism without scientific means of control, and we consequently have been far too much influenced by routine in the hope of controlling nitrogen excretion, which, after all, can hardly be considered an accurate measure of the gravity of the case. In chronic nephritis, nitrogen excretion is variable beyond explanation, and peculiar kinds of diet do not appear to influence it to any important extent.

So far as can be seen at the present time the only reliable criterion available for regulating the protein intake in nephritis is the determination of the amount of waste nitrogen retention by blood analysis. That it is possible to reduce the urea and waste nitrogen of the blood to normal or less is abundantly proved by the feeding experiments of Folin, Denis, and Seymour, and Frothingham and Smillie. Cases with considerable retention require a restriction of protein, and by this means a return to normal figures may be brought about if the azotemia be not too severe. In cases of outspoken uremia no marked reduction of the azotemia results from a protein-free diet.

Folin, Denis, and Seymour state that the response to the phthalein function test can be reduced by one-half before abnormal accumulation of non-protein nitrogen takes place in the blood. This estimate is in keeping with Agnew's statement that at 40-per-cent phthalein excretion cumulative phenomena appear in the blood. In clinical practice then it may be assumed that accumulation of waste in the blood begins at about the point where response to renal function testing by phthalein drops to 40 per cent in two hours. Routine observations with this readily available test may thus enable one to appreciate, with much greater precision than is possible from clinical observation alone, the point (40 per cent or lower) where positive protein restriction should begin. When the functional index is normal or nearly normal in contracting kidney it is difficult to understand what harm will result to the organs, provided no inflammatory element is present, from a protein allowance based on physiological needs. This being the case, we need no longer feel that some trifling miscalculation in the protein ration will jeopardize the welfare of the nephritic patient, nor that it is necessary to draw fine distinctions between various forms of protein.

Aided by periodic functional testing to check up the condition of the kidneys, and with our present knowledge of physiological food requirements for good nutrition, the dietotherapy of chronic nephritis may be adopted with reasonable safety, if not, perhaps, with accuracy, and with due realization that in so chronic a disease general nutrition and kidney conservation should stand on a parity.

ON THE TOXICITY OF VARIOUS COMMERCIAL PREPARATIONS OF EMETINE HYDROCHLORIDE.

LEVY and ROWNTREE (*Bulletin of the Johns Hopkins Hospital,* February, 1916) state that as the result of an investigation they made the following facts were brought out:

1. Various commercial preparations differ widely in toxicity. The therapeutic dose (mg. per kg.) closely approximates that necessary to produce toxic symptoms.

2. When intravenously administered, emetine is a powerful cardiac poison, causing at times fibrillation of the ventricles, from which the animals may recover. It is also a circulatory and respiratory depressant.

3. In fatally poisoned dogs, the characteristic lesion is a hemorrhagic gastroenteritis. Lesions in cats and rabbits are slight and inconstant.

4. The factors of blood coagulation are disturbed in poisoned animals.

5. There is found no evidence of renal insufficiency; a slight terminal acidosis is present.

On reviewing the reported cases in which ill effects have followed the clinical use of

emetine, it is apparent that diarrhea is an early toxic manifestation and that peripheral neuritis is one of the most frequently observed sequelæ, even after the administration of therapeutic doses.

As a result of these observations, it is suggested that emetine preparations be employed with caution. It is desirable that the drug be given subcutaneously, in courses, at intervals of several days or a week. A third of a grain three times a day, for a week or ten days, is usually a safe dosage in amebic infections. According to Bass and Johns, half a grain daily for from three to six days suffices in pyorrhea. Large doses should be avoided. Intravenous injections should be employed only in extreme cases. If this mode of administration seems imperative, small doses, well diluted (gr. ss in 100 Cc. salt solution), should be slowly given, and the blood-pressure should be carefully observed during the injection.

ON THE BACTERIAL POWER ACQUIRED BY THE SERUM AFTER THE ADMINISTRATION OF SALVARSAN OR NEOSALVARSAN.

In the *Lancet* of January 22, 1916, DOUGLAS and COLEBROOK reach these conclusions:

1. Neosalvarsan and salvarsan in watery solutions possess a very distinct bactericidal power against staphylococcus when the strength of the solution is 1 in 6000. When the solvent largely consists of blood or serum this power is slightly diminished. The bactericidal power of solutions of both these preparations appears to be practically the same.

2. The administration of neosalvarsan in ordinary doses renders the blood fluids markedly bactericidal. This power lasts but a short time, and seems to reach its maximum about one hour after the administration of the drug, diminishing rapidly in the third and fourth hours.

3. Heating the serum to 60° C. for from ten to twenty minutes has no deleterious effect on this bactericidal power, showing that it is not in any way due to the development of immune bodies in the serum, and this fact, together with the short period in which the serum is found to be bactericidal, strongly suggests that the bactericidal power is due to some arsenic compound in solution in the blood serum.

4. Salvarsan, which, as mentioned above, has almost identically the same bactericidal power as neosalvarsan in *in vitro* experiments, gave practically no demonstrable bactericidal power to the patient's serum when ordinary therapeutic doses were administered, but it was constantly noticed that organisms which had been treated with serum obtained within three hours of the administration of the drug grew very much more slowly than normally and were agglutinated into masses.

5. In view of the very distinct bactericidal power which the serum acquires after the administration of neosalvarsan, it is reasonable to hope that the administration of this drug, or some similar preparation such as neokharsivan, would have a beneficial effect on wound or other similar septicemias, and might even strikingly assist in the sterilization of deep and irregular suppurating wounds.

THE TREATMENT OF PARESIS AND TABES DORSALIS BY SALVARSANIZED SERUM.

In the *American Journal of Insanity* for January, 1916, COTTON concludes a long article on this subject, in which he emphasizes:

1. The fact that in the use of salvarsanized serum we have an agent which causes definite arrest in paresis, which arrest includes improvement in the clinical symptoms, physical signs, and a corresponding change in the biological reactions from positive to negative.

2. That to be effective the case must be treated in the early stages, as advanced stages show no favorable reaction to the treatment.

3. That the length of time is not always an indication of the severity of the symptoms, but the majority of cases cannot be

helped after two or three years have elapsed.

4. That treatment must be persistent and uninterrupted, grading the amount of dose and frequency of treatment to the condition of the patient.

5. That taboparesis should be cautiously treated, usually with small doses and not oftener than three weeks.

6. That the remission caused by the treatment cannot be compared to spontaneous treatment, for the percentage in the former is 35.5, and in the latter case only 4.

7. That the change in the cell count, globulin content, blood and spinal fluid Wassermann reactions are the direct result of the treatment, and not to be compared with the variation found in untreated cases of paresis.

8. That the efficacy of the treatment depends not upon the type of method used but upon the stage of the disease.

9. Hence the necessity for early diagnosis in paresis and prompt treatment as soon as possible.

A QUANTITATIVE STUDY OF THE ANALGESIA PRODUCED BY OPIUM ALKALOIDS, INDIVIDUALLY AND IN COMBINATION WITH EACH OTHER, IN NORMAL MAN.

In the *Journal of Pharmacology and Experimental Therapeutics* for January, 1916, MACHT, HERMAN and LEVY reach these conclusions from an investigation:

1. A convenient method for studying cutaneous pain sensation in man quantitatively and expressing the results in absolute physical units has been described.

2. The principal opium alkaloids in respect to their analgesic power can be arranged in the following order: Morphine, papaverin, codeine, narcotin, narcein, and thebain.

3. It has been found that a combination of morphine and narcotin, and also a combination of the total opium alkaloids, is much more effective than the quantity of morphine they contain would be if given alone.

4. It has been further found that in the case of one of the authors showing an idiosyncrasy for morphine, that alkaloid produced a heightening instead of a lowering of the threshold of pain, which phenomenon, however, disappeared on administering morphine in conjunction with narcotin.

SOME OBSERVATIONS ON THE ELIMINATION OF HEXAMETHYLENETETRAMINE (UROTROPIN).

The *Journal of Pharmacology and Experimental Therapeutics* for January, 1916, contains an article on this topic by FALK and SUGIURA. In conclusion they say:

1. A method for the estimation of hexamethylenetetramine is described.

2. The total and percentage amounts of hexamethylenetetramine recovered in the urine of normal (average) individuals after administration by mouth were determined and some of the factors involved in the excretion are discussed.

3. In general terms, the amount normally excreted is greater the lower the specific gravity of the urine.

4. The concentration of formaldehyde in urine had no apparent connection with the amount of hexamethylenetetramine excreted.

5. In a number of pathological cases involving impairment of kidney function, abnormally small amounts of hexamethylenetetramine were excreted.

THE COMPARATIVE PHARMACOLOGIC ACTION OF ETHYLHYDROCUPREIN (OPTOCHIN) AND QUININE.

Writing in the *Journal of Pharmacology and Experimental Therapeutics* for January, 1916, SMITH and FANTUS tell us:

1. The pharmacologic action of optochin is qualitatively like that of quinine. The differences are quantitative.

2. Optochin is more toxic than quinine. In view of its considerable degree of toxicity, they would urge caution in the clinical use of optochin, especially in its intravenous administration.

3. Optochin administered intravenously

lowers the blood-pressure somewhat less than quinine, though it depresses the heart more. The peripheral vasoconstriction probably counteracts partly the effects of cardiac depression. The blood-pressure is not a safe guide in the administration of optochin.

4. Optochin is less efficient as an antipyretic than quinine in experimental fever in rabbits.

5. Lastly, since it has been advocated for local use in eye infections, it is important to note that even a 2-per-cent solution of optochin is highly irritant to the conjunctiva.

DOES THE PITUITARY GLAND CONTAIN ADRENALIN OR A COMPOUND SIMILAR TO IT?

In the *Journal of Pharmacology and Experimental Therapeutics* for January, 1916, WATANABE and CRAWFORD answer this question as follows:

1. Pituitary extracts prepared by certain methods give color reactions similar to those given by suprarenal extracts.

2. Slowing of heart-rate (dog) was noted from a preparation in which no pressor action was detected.

3. Pituitary extracts cause a strong contraction of non-pregnant cat's uterus. A certain amount of adrenalin when mixed with pituitary extract does not change the characteristic action of pituitary extract on the cat's uterus.

4. After ergotoxin injection, pituitary extract causes a lowering of blood-pressure as by adrenalin. This suggests that some of the action of pituitary extract is on the sympathetic nerve terminals.

5. Isolated loops of rabbit's and cat's intestine are strongly contracted by pituitary extract. Relaxation of the intestine was not obtained by the addition of a certain quantity of adrenalin to such extracts.

6. By oxidation with MnO_2, pituitary extracts lose their pressor action and some of their color reactions, but retain at least to some extent their action for both non-pregnant cat's uterus and rabbit's and cat's intestine.

7. Several methods for isolation of adrenalin were tried on the pituitary glands, but were unsuccessful.

MODERN THEORIES OF PASTEURIZATION.

Bulletin No. 342, United States Department of Agriculture, January 8, 1916, treats this topic in detail. It points out that one objection to pasteurized milk has been that bacteria grow faster in it than in raw milk. In spite of several experiments which seem to prove this point, it has never been thoroughly established. It has been found that the rate of bacterial increase is approximately the same when the comparison is made between raw milk and pasteurized milk having about the same bacterial content.

It is often stated that pasteurization, even if it does destroy bacteria, does not destroy poisonous products of their growth. This can hardly be considered a real objection, for if they are present in raw milk they must be consumed with it, and if pasteurization does not destroy them the pasteurized milk would be no worse than the raw milk.

The question as to whether pasteurization destroys beneficial ensymes is still an open one. In the light of our present knowledge of the enzymes in milk and the part they play in the digestive process it is quite impossible to settle the question of their importance. It is evident, however, that the low temperatures now in use in pasteurization have little effect on the recognized enzymes.

The opponents of pasteurization have raised an objection on the ground of its direct influence on the milk producer. It has been asserted that pasteurization would cause lax methods of production on the farm, for the reason that farmers would know that the milk was to be pasteurized, and, therefore, they could be careless in its production. There seems to be some basis for this objection, but in any city where there is any inspection of the raw-milk supply the same inspection can and should be

continued even though the milk is to be pasteurized.

From a chemical standpoint serious objections have been raised against pasteurized milk, because the heating produces changes which render the milk less digestible, particularly in the case of infants. Rupp has found that milk pasteurized at 145° F. for thirty minutes does not undergo any appreciable chemical change. He found that soluble phosphates do not become insoluble, that the albumin does not coagulate, and that when higher temperatures are used chemical changes do occur. He also developed the fact that five per cent of the albumin is rendered insoluble in milk heated for thirty minutes at 150° F., while at 160° F. 30.78 per cent of the albumin is coagulated. It is evident that the use of low temperatures for pasteurization overcomes any objections which may be raised on the ground of chemical changes.

Further evidences that low temperature pasteurization does not injure the digestibility and nutritive value of the milk is shown by the results of feeding experiments on babies. According to Weld a number of babies that were fed raw milk and pasteurized milk showed only a slight difference in the average net daily gain in weight during the feeding period. The slight difference was in favor of pasteurized milk.

High-temperature pasteurization of earlier days must not be confused with low-temperature pasteurization of the present day. Many of the objections which have been raised to pasteurization have been founded on the observation of milk heated to high temperatures. Unfortunately, not until recently has the use of low temperatures entirely changed our views in regard to the value of pasteurization. The fallacy of the objections to pasteurization has been shown, however, through scientific research in the past few years, and as a result the value of the process has been firmly established.

Although pasteurization is being more extensively practiced in most cities, particularly the larger ones, there are health departments in some of the smaller cities which are strongly opposed to the process; there are also many people who object to it. The problem of pasteurization is not based simply on the question of which is preferable, raw or pasteurized milk, but rather upon the most economical and practical way of producing a safe milk supply. In small cities where money enough is available to pay for inspection, and where the milk supply is drawn from farms within a short distance of the city, it may be feasible, without pasteurization, to bring the supply to a point of reasonable safety. To produce, however, the same degree of safety in the supply of a large city by inspection would involve a tremendous expense.

Let us consider for a moment the supply of New York City, which in 1912 amounted to about 2,500,000 quarts daily. This milk came from 44,000 farms in six States, and was the product of about 350,000 cows. Some of it had to be transported 400 miles or even more. It was estimated that 127,000 people were engaged daily in handling the milk supply of that city. It is hardly necessary to discuss the magnitude of a system of inspection suitable to guarantee a safe milk supply of this size.

There is, of course, in the large cities a small quantity of high-grade raw milk, but it is produced under special conditions and sells at a higher price than regular milk. The cost of such milk makes it prohibitive for use in poor families. The means of creating a safe milk supply for general consumption, especially for large cities, is, then, in inspection, developed to the highest practical degree, followed by proper pasteurization.

It seems probable that within the next few years a large proportion of the milk supply in American cities will be pasteurized. This condition will come first in the larger cities, where the safeguarding of the milk supply is a more difficult problem. For economic reasons, and in recognition of the process as a means of eliminating certain risks which cannot be completely eliminated in any other way, the pasteurization of milk is certain to be the general practice in this country.

THE VALUE OF DIASTOLIC BLOOD MEASUREMENT IN DIAGNOSIS OF CIRCULATORY DISTURBANCES.

In the *Cleveland Medical Journal* for December, 1915, BOWMAN writes on this important theme, pointing out that until within the past two or three years the diastolic blood-pressure was considered of no importance. Cabot in his 1912 edition says: "Very little of diagnostic or prognostic value attaches to it in my experience." But very recent observers have found it to be of great value in clinical work. However, before entering upon a discussion of its value in the diagnosis of circulatory disturbances, it would seem advisable to refresh our memories by briefly stating a few points concerning it.

First, what is diastolic blood-pressure? With each ventricular systole waves of pressure are thrown into the aorta and these continue on into the arteries. The highest pressure attained in this stream of blood is known as the systolic pressure. But part of this energy expended by the heart becomes potential energy, stored up as it were in the distended, elastic arteries, and when the high pressure has passed these distended walls tend to return to their normal size and thus exert a constant pressure on the blood within the vessels. This constant pressure represents the diastolic pressure, and may be defined as "the lowest pressure occurring between the heart-beats." The difference between the systolic and diastolic pressure is termed the pulse pressure. Each of these pressures is given in terms of the height in millimeters of a column of mercury; systolic being about 115 mm., diastolic about 80 mm., and pulse pressure about 35 or 40 mm.

Secondly, its maintenance. Diastolic blood-pressure is maintained by and depends upon the elasticity of the vessel walls plus peripheral resistance.

Thirdly, its measurement. There are two methods used, the auscultatory and the oscillatory. In both cases a cuff about twelve centimeters in width and which can be inflated is placed around the arm or leg, and the measurement depends upon certain changes occurring when the pressure in the cuff is equal to the diastolic pressure. The change in the auscultatory method is in the sound below the cuff detected by a stethoscope, while in the oscillatory the change is in the pulsations of the manometer connected with the cuff. The auscultatory method is by far the more valuable of the two.

Regarding the value of diastolic blood measurement in the diagnosis of circulatory disturbances: In the first place its measurement serves as an index to the load which the vessels and the aortic valves must constantly bear. Throughout the diastole of the left ventricle these valves must stand guard and support this diastolic pressure or else blood will flow back and the circulation be diminished. The measurement of the diastolic blood-pressure accurately records this pressure or load which the vessels and valves must bear.

In the second place and viewed from the standpoint of the heart we readily see that this same load upon the aortic valves, due to diastolic pressure and coming from the arterial side, must be overcome on the other side at the beginning of each ventricular systole before the valves can be forced open and blood thrown into the circulation. This means work for the heart. and here again the measurement of the diastolic pressure gives us an estimate of the load which it must lift before any blood leaves the heart.

Now what is the value in the diagnosis of circulatory disturbances of knowing these things? From the view-point of the vessel walls and valves suppose we had a high systolic pressure with a normal diastolic, what would it mean? Would it mean excessive strain for the vessel walls, valves, and heart? Probably so, but the systolic pressure is transient and following each wave there is rest. Now suppose we had a high diastolic pressure in the above condition. What would it mean?—excessive weight on the arterial walls and valves, and on top of this no rest, for the diastolic is a constant pressure; also there would be an abnormally heavy load for the heart to raise

before the aortic valves are forced. Hypertrophy of the heart walls, degeneration of the arterial walls, and what not may occur.

Diastolic blood-pressure gives us valuable information in regard to peripheral resistance. Dr. Warfield of Milwaukee says it "measures peripheral resistance." Dr. Macleod speaks of it as helping to "gauge peripheral resistance."

In the first condition suppose we had a case of hypertonicity, or sometimes called hypertension. Here we find fairly healthy arteries much constricted. This increases blood-pressure, and accordingly systolic blood-pressure. If the arterial walls are healthy this will also increase the diastolic pressure, for the greater the force required to dilate the arteries the greater will be the potential energy stored up. Here we have a high systolic with a high diastolic. What does it mean? Evidently it means greater strain on the vessel walls and the valves, and increased work for the heart. Remember this is a constant pressure in the sense that it is the pressure in the arteries between the heart-beats, and, on the vessel walls especially, entails a greater strain than the transient systolic. It "should be taken as a danger-signal of possible rupture." Bowman thinks it safe at least to draw a general conclusion in such cases that the greater the strain the more subject these organs are to degeneration.

The second case is that of arteriosclerosis of the Gull and Sutton type, by which Bowman means a condition in which the smaller arteries and arterioles are affected. The walls are stiffened and less potential energy is stored up, and correspondingly the lower is the diastolic pressure (if they were perfectly rigid the diastolic pressure would be zero). To maintain the circulation the heart is called upon for more rapid pulse or greater force, possibly both. This is a case of high systolic and low diastolic pressure. The result is a less constant pressure but an enormously increased pulse pressure and cardiac activity, which eventually mean hypertrophy and degeneration of the heart along with that of the arteries.

The third condition is that of hypotonicity. Here the tonicity of the vessel walls is lowered. Accordingly we have a relaxed periphery and a correspondingly lowered diastolic blood-pressure. The blood is forced into the vessels, but the vessels fail to contract down upon their volume—*i.e.*, the diastolic pressure is not present to give the constant pressure necessary to squeeze the blood through the capillary system and furnish food to the tissues and organs. Such cases may occur in toxic paralysis of the vasomotor center and in general cardiac weakness. The heart is possibly called upon to offset the evil.

In connection with these cases it might be well to give a quotation from Dr. Macleod's article in a recent journal. In refering to allied conditions he says: "In using the diastolic pressure, however, it must be remembered that the heart-rate also affects it, a slow heart making it fall and a quick heart making it rise. It is therefore possible to have a normal diastolic pressure, either with a low peripheral resistance and a quick pulse, or with a high peripheral resistance and a slow pulse. In these cases the arterial walls may be perfectly healthy."

So, in the fourth place, the measurement of the diastolic finds its greatest value, Bowman thinks, by the help it gives in diagnosing the conditions of the circulation through its relation to the systolic and pulse pressures. It is of extremely great value in itself alone, but we can recall from the instances used above that it finds an added value in its relation with the others.

THE RELATION OF MORPHINE TO POSTOPERATIVE COMPLICATIONS AND IMMUNITY.

In the *Journal of the American Medical Association* of January 22, 1916, Davis as the result of an investigation of this matter states that the combination of morphine (from one-eighth to one-sixth grain) and atropine (from 1/150 to 1/120 grain) hypodermically before operations is of very little importance so far as the prevention of postoperative shock is concerned, and in the general run of cases plays a negligible part

in the production of postoperative nausea and vomiting, tympanites and paralytic ileus, and postoperative retention of urine. It has practically no effect on immunity. Morphine alone, preceding local anesthesia, adds nothing to the efficiency of the anesthetic, and causes postoperative nausea and vomiting in 25 per cent of the patients; it makes the patient "dopey," and hence deprives the operator of the coöperation of the patient, which at times may be valuable. In view of these conditions, and in view of the disadvantages of imposing one powerful depressant of the medullary centers (namely, morphine) on another (namely, ether), the preoperative use of morphine should be abandoned. In view of the same conditions, morphine in therapeutic doses—that is, from one-eighth to one-sixteenth grain, to an adult of average size—repeated at intervals of not less than six hours, should not be denied to patients whose postoperative suffering cannot be controlled otherwise.

THE BACTERICIDAL ACTION OF NORMAL AND INFECTED SERA UPON DIFFERENT MICROBES.

In the *Lancet* of January 15, 1916, SAKAGAMI states be has drawn the following conclusions regarding this problem:

1. The following microbes grow in normal serum: staphylococcus pyogenes, pneumococcus, pseudo-tuberculosis, streptococcus pyogenes, and M. catarrhalis.

2. Normal serum has a small bactericidal action upon staphylococcus during the first hour of exposure, but after many hours its power decreases. Serum heated to 60° C. has no power. Normal serum has no bactericidal power upon the streptococcus.

3. Serum of tuberculous patients has smaller bactericidal power than normal serum upon the staphylococcus and streptococcus. Serum of those suffering from staphylococcal infections has a little stronger power than that of tuberculous patients. The serum of those suffering from tuberculosis and staphylococcal infections at the same time has more power than the serum of those suffering from tuberculosis only.

4. The bactericidal action of Sakagami's own serum after he had been inoculated with cholera and typhoid mixed vaccine was noticeable on both these bacteria, but otherwise was unchanged.

THE TREATMENT OF DYSENTERY.

RONALD ROSS in the *Lancet* of January 1, 1916, states that the treatment of running acute dysentery is the great problem in most cases, and, he regrets to say, one which cannot always be solved, as admitted by some of the most experienced practitioners in all countries. Here the mischief has been already accomplished, and we are probably in the presence of an almost denuded colon. He tried antidysenteric sera in many such cases on the mere chance that they might destroy the specific bacteria if present, there being generally not sufficient time to make minute pathological studies. And the treatment was said by many to be remarkably beneficial in a certain proportion of cases. But others were not so favorably inclined to it, and others again argued that an ordinary horse serum would probably have been just as useful. Ross has suggested that polyvalent sera might be put on the market against other intestinal flora than the specific ones, and hopes that such will be tried before long.

Failing sera, he had recourse to medicinal treatments. He always urged the bismuth treatment elaborated by Deeks in Panama, and consisting of a heaped tablespoonful of the subnitrate three or four times a day. The utility of this medication is supposed to depend not only upon the astringent value of bismuth, but also upon a chemical change, and lastly upon the mechanical action of the powder, which is likely to injure amebæ by attrition. At all events, bismuth in these and smaller doses is very generally given in dysentery, was largely employed throughout the hospitals in Alexandria, and certainly, Ross thinks, proved distinctly useful. It was generally administered continuously, beginning a day or

two after the initial treatment with emetine was commenced.

Ross has always liked tannic acid in conjunction, say up to ten grains for each dose.

In fact, tannic acid has been used for a long time, and was often administered together with ipecacuanha powder, because it tends to check the vomiting induced by the latter, as well as because of its astringent effect. But it is a good general rule not to use any astringents at all too early—that is, until the specific remedies have had time to take effect. After that happens, however, opium, bismuth, tannic acid, catechu, and other astringents do often succeed in terminating the attack very rapidly. Ross regrets to say, however, that many cases become cases of established running dysentery in spite of all treatment.

Collapse is another very difficult condition to deal with. Lieutenant-Colonel A. H. Lister, of one of the hospitals in Alexandria, often used the subcutaneous infusion of hypertonic salines together with ten minims of adrenalin solution, 1 in 1000, every four hours, injected hypodermically, with very good results, and strongly recommends the adrenalin.

Opium is, of course, an invaluable drug throughout the treatment, and though some practitioners appear to be nervous about it, Ross thinks that the use of it is really general at all stages.

Ross now comes to a very vexed question—namely, the use of enemata in acute dysentery. There is no question of their use in chronic dysentery, especially of low-down ulceration; but some of us feel that they are contraindicated in very early cases. The disease is itself complicated with purging, and if the sulphates are being given at the same time, there is a continual washing out of the bowel from within. In such cases Ross really cannot understand the rationale of using massive lavations, which depress the patient and may even rupture the very thin walls of the ulcers; and we never know how old and thin the ulcers may be. Others object to them on the ground that they may engender secondary infections from without; and he has a feeling that enemata are somewhat too frequently followed by running dysentery.

Such a great authority as Professor Kartulis is confident that tannic acid is most beneficial from the first. Rogers often recommended quinine lavations. Colonel Lister was an advocate of three or four ounces of olive oil containing a drachm of ichthyol, preceded by a morphia suppository half an hour before the injection. Nitrate of silver has always been employed in chronic dysentery, and Ross knows many cases in which it has certainly effected a cure; but nowadays we should use protargol or similar salts—and these were employed with fairly good results in many of his fresh cases. If lavations are employed at all, he likes warm water without salts, as it swells up and destroys amebæ; or warm and weak permanganate solution, or warm and weak solution of quinine. But he still does not favor this form of medication very much in acute dysentery.

THE TREATMENT OF UTERINE HEMORRHAGE BY THE ROENTGEN RAY.

CORSCADEN (*American Journal of Obstetrics*, January, 1916) states that the technique followed has been to divide the abdomen below the umbilicus into nine areas, using the back and each buttock for three more, making a total of twelve. Through each of these in turn the rays are directed at the point where the nearest ovary is supposed to be. The size of the abdominal areas being from 5 to 6 centimeters square will allow for some error in calculation, so that most of the rays reach the ovary. The measurements of the dosage are: Distance from anode to skin 25 centimeters, spark-gap 22 to 24 centimeters, milliamperes 7, Bauer 10, filter 3 millimeters glass, 1 centimeter of wood, 3 millimeters of aluminum. This gives 1 Holzknecht unit a minute. Seven Holzknecht units are given to each skin area. The series is repeated after three weeks.

The personal results have been as follows: In twenty women of thirty-eight and over,

whether possessing fibroids or not, complete amenorrhea in 5 per cent from the onset, in 5 per cent after one period, in 5 per cent after three periods, and in 85 per cent after two periods. The first period occasionally is profuse. All of the cases have been severe enough to partially or completely incapacitate the women. Activities were resumed usually about three weeks after the first exposure.

Severe untoward effects occurred in only two cases. One suffered from nausea and diarrhea, the other from diarrhea indistinguishable from mucous colitis. Many of the women felt fatigued for a day or two and a few suffered headaches; albumin and casts appeared in the urine of one woman. No late effects other than those accompanying the menopause have been noted save in one case in which there was an attack of uremia six months after the end of treatment, in a woman suffering from large polycystic kidneys. The skin becomes tanned after two series, fading after cessation of the treatment. No dermatitis has resulted from the dosage. A small linear burn occurred in the very first case treated because of imperfect apposition of the lead protection. Slight vesication resulted, but the skin became normal again in six weeks. This accident has not recurred.

The causes of uterine hemorrhage may be divided into two classes: (1) Those peculiar to the uterus and causing normal or pathological menstruation. (2) Those common to all parts of the body regardless of sex.

Menstruation is dependent on the activities of the corpus luteum.

Roentgen rays destroy the follicle apparatus of the ovary and thereby automatically bring about a menopause.

In bleeding from the uterus without gross pathological lesion, whether accompanied by changes in endometrium or fibrosis of arteries or myometrium, production of the menopause constitutes a cure.

In women over thirty-seven this menopause is incomplete either with a temporary amenorrhea or merely a lessening of the flow.

All myomata which do not constitute an immediate or remote menace aside from that of hemorrhage are proper subjects for the production of the menopause, provided that ulcerative changes or pedunculated fibroids or polyps do not exist, and provided that the possessor be over thirty-seven years of age.

All myomata which constitute a menace in women under thirty-eight should be excised rather than be subjected to Roentgen rays unless operation is contraindicated.

In hemorrhage from malignant disease Roentgen rays are contraindicated.

THE DIAGNOSIS OF INTRACRANIAL BLEEDING IN THE NEW-BORN.

Sloan (*Cleveland Medical Journal,* December, 1915) notes that the majority of those who recover suffer from diseases of the central nervous system—the result of scar tissue formed by the organization of the clot.

Paul found retinal hemorrhages in 50 per cent born through contracted pelves; in 40 per cent where labor was protracted; and in 20 per cent where the babies were born spontaneously.

This is attributed to back pressure in the veins of the head. The great majority of injuries occur during the descent through the birth canal. The brain of the baby is able to stand anemia or asphyxia over a longer period than is that of the adult.

The babe which has intracranial bleeding presents general symptoms of increasing intracranial pressure. If the bleeding has been of sufficient amount at the time of birth, then there is found difficulty in inducing normal respiration. The infants are restless, moving the arms and legs, as well as making facial contortions. They will not take nourishment. If nourishment is forced upon them, it causes queer choking noises in swallowing. They have a peculiar cry, aptly compared by a well-known maternity nurse to the mewing of a cat. The restlessness and crying of the child are seen more in cases of bleeding above the tentorium, undoubtedly being due to the pain

caused by stretching of the dura from the increased expansion beneath it. The child appears pale, and if attention be paid to the pulse-rate it will be found to be slower than usual. There is a tendency, however, for the pulse-rate to be affected less in rate than in the adult under the same circumstances. The pallor results from the vasoconstriction in the attempt of the body to raise the general pressure to supply blood to the cerebral cells. The fontanel becomes more tense because of the increased intracranial pressure, and one of the lambdoidal sutures where it joins the parietal over the bleeding area may be found gaping more widely than its fellow of the opposite side. The fontanel, however, may still remain sunken when there are well-marked symptoms of intracranial pressure increase associated with generalized convulsions. The pulsation of the fontanel is absent. The veinules of the eyelids which empty into the sinus cavernosus may be more prominent than usual, especially over the side where the hemorrhage has taken place.

Upon examination it may be found that the spinal accessory which supplies the sternocleidomastoid is progressively affected, showing increased muscle tone. Pressure on this nerve causes spasmodic contraction of the sternocleidomastoid, turning the head toward the side on which the bleeding occurs. Later, as pressure increases, the sinus sagittalis superior becomes obstructed from pressure contact with the clotted blood. The resultant excessive spasticity of the lower limbs then occurs because of the venous obstruction of their centers. The child becomes comatose, and as the pressure increases from the clot and cell edema there is seen the resultant muscular paralysis of the flaccid type, with lack of deep tendon reflexes. The babe's breathing is affected, first slowed and deepened, then respiration becomes rapid and shallow, blood-pressure starts to fall with the increasing rapidity of the heart-rate, and finally death results with cessation of respiration, the heart continuing to beat longer. The pupils during the irritative stage are contracted, and later on when paralysis occurs they become widely dilated and do not react to light. During the stage of irritation, namely, while the child is having clonic and tonic muscular contractions, there occur interruptions of the respiration in true convulsions with cyanosis and apnea. At the end of this convulsion, when the respiration is resumed, there is often noted in supratentorial bleeding the temporary relaxation of the vasoconstrictors, causing a wide-spread skin blush. Pressure over the fontanel may at this stage start a convulsion.

The child lies quiet, showing no movements of any extremity, and seldom cries; because if the pressure is sufficient to cause tentorial stretching and therefore pain, the medullary centers are rapidly involved, with resulting death. There is slight cyanosis of the skin instead of the pallor connected with supratentorial bleeding. This arises from early involvement of the respiratory center in the medulla. The child is liable to have nystagmus. Blood running down the spinal subarachnoid space gives symptoms of spinal irritation, namely, stiff neck, with the resulting bilateral rigidity of the whole musculature. Lumbar puncture in these cases shows cerebrospinal fluid mixed with blood, whereas in the supratentorial type the fluid may be clear, because here the bleeding usually occurs between the dura and the arachnoid. This plane is shut off from the subarachnoid space where the cerebrospinal fluid is present. As the pressure increases there is an interruption of the blood flow in the sinus rectus with the damming back of the blood flow in the venæ cerebri internæ and resultant brain edema. There is less tendency to bulging of the fontanel in the early stages, but later when the brain edema comes on the bulging may be as marked as in the supratentorial type.

In intraventricular hemorrhage the babe is restless, shows a bulging fontanel and general muscular rigidity. In every case in which there has been difficult labor, where instruments have been used or where the labor pains have had unusual force, the child should be closely watched for the first

three or four days after birth. Symptoms arising from birth hemorrhage may not become evident for five or six days later. Where there is any question of brain hemorrhage the child should be kept quiet and moved as little as possible, as any sensory stimuli are prone to cause a general convulsion. With the appearance of symptoms of general increase in the pressure, slow pulse, tense fontanel, with muscular spasms, it is wise to do a decompressive operation over the suspected area of bleeding. In cases of edema due to injury of the brain alone, without bleeding, the same rules are adopted, namely, to interfere and to do a decompression when the signs of increased pressure are marked. Although the suture lines of the cranial bones in the infant are loosely joined and although this factor may allow for a certain amount of expansion of the fetal brain, yet it may not be sufficient to tide the child over this critical period, whereas decompression may be life-saving.

The decompression should not be delayed until the compensatory stage of Kocher is passed. The best results from operation are seen when it is done while the pulse-rate is still slow and before respiration becomes irregular. The cells of the centers relieved of their compression at this stage always live. If, however, operation is deferred until signs of failing compensation are apparent through rapid heart-rate, less booming second aortic sound, and irregularity of respiration, then there is grave danger that although the operative procedure is successfully accomplished, the child will die within the next few hours because the brain cells have been irreparably damaged.

The author closes his article with the following statements:

In case of difficult or prolonged birth, where there has been a difficult instrumental delivery, or where there is tardy starting of spontaneous respiration, the babe ought to be carefully watched for the next few days to see if there is any evidence of cerebral bleeding.

Early symptoms of cortical irritation are most valuable in localization of the bleeding. Bleeding above the tentorium can be differentiated from that occurring below it. When symptoms of general increase in intracranial pressure become marked a decompression operation ought to be done.

The best results are seen when decompression is done while the pulse-rate is still slow and before respiration becomes irregular.

CLINICAL RESULTS OF 1000 INTRAVENOUS INJECTIONS OF GALYL.

SPENCE (*Lancet*, Dec. 11, 1915) records his experiences in connection with the administration of one of the newer specific remedies, galyl, in a series consisting of somewhat over 1000 consecutive intravenous injections, given principally at the London Male Lock Hospital in the period from June to November, 1915, inclusive. His remarks are confined to clinical observations only, no systematic study having been undertaken of the effect on the Wassermann reaction or of certain other questions chiefly of academic interest.

Galyl, or tetraoxydiphosphaminodiarsenobenzene, is one of several synthetic substitutes for salvarsan which have recently appeared on the market. It is the invention of a French scientist, M. Mouneyrat, and while it is a substance with a high arsenic content (35.3 per cent), it possesses some claim to originality in that it contains in its formula the element phosphorus (equal to 7.2 per cent), while the atoms of arsenic are graphically represented as differently grouped. A comparison of the full doses advised for galyl and for salvarsan and neosalvarsan indicates that galyl as administered actually contains only about half as much arsenic as the others, a point of passing interest in view of the recent suggestion that the activity of those agents may be not wholly dependent on the arsenic moiety. In the leaflet which accompanies the preparation the assertion is made that it has the advantage over the other arsenic derivatives of being non-toxic to nerve tissue.

The preparation is supplied in five different strengths—viz., 0.4 grm., stated to be the full dose and to correspond to 0.9 neo-

salvarsan; three smaller, 0.25, 0.30, and 0.35 grm.; and a larger, 0.5 grm. It is left to be inferred that the large dose is to be used only very occasionally, or in other words that it is a specially powerful one. Spence states that during a recent temporary shortage of galyl he was supplied with several 0.5 grm. tubes and used them in place of the 0.4's with indistinguishable results.

The substance itself is a light-yellow powder which looks not unlike salvarsan, is also readily oxidizable, and is put up in similar but larger tubes. It is readily soluble in distilled water, giving a clear olive-yellow transparent solution, neutral in reaction, which upon standing a few moments becomes darker in color. Perhaps this statement should be modified by saying that an occasional ampoule will be found giving a slightly hazy solution, but apparently this does not indicate deterioration, and no unusual result has been observed in such instances. It is used in precisely the same way as neosalvarsan, either in concentrated solution in the 10-Cc. piston syringe, or more dilute in the familiar burette apparatus, preceded and followed by a little distilled water. This last is the safe method where one is giving intravenous injections only occasionally, and is useful also in institutions where good assistance is available and large numbers of injections have to be given quickly.

In clearing up symptoms the new preparation differs little if at all from its older rival. Indeed, at times Spence has been inclined to think that its effect on the large papular syphilide, a lesion most resistant to salvarsan, is somewhat better, from a comparison with concurrent cases in which the latter was used. It is certain that patients experience the same feeling of buoyancy and of well-being after galyl; appetite and nutrition improve, and there is frequently an increase in sexual vigor.

Second only in importance to effectiveness in clearing up symptoms is the question of toxicity. More than 150 deaths are credited to salvarsan, to say nothing of innumerable accidents and severe reactions, mostly in the early days and variously attributed to the water used, to improper preparation of patient, to pathological condition, to too frequent administration, or to errors of technique. Nor has the use of certain other of the newer preparations been without disaster, as witness the cases so graphically described by Mr. Lane and Mr. J. E. R. McDonagh, of the honorary staff of this hospital.

No fatality has as yet been reported with galyl. Neither has there been reported any undoubted case of arsenical intoxication, but in this connection it is to be remembered that the remedy is new and its literature at the time of writing very meager. In a certain small number of cases of the present series there have been mild reactions shortly after or within a few hours after injection, but in only one did the temperature reach 104°, and in this case the presumption was strong that it was due to an endotoxic rest. If a patient has partaken of a hearty meal shortly before an intravenous injection is given, vomiting is not uncommon with any drug, perhaps with chilliness or a rigor, pyrexia, or even purging and enuresis. If, however, he has been properly prepared, has rested well, and the alimentary tract has been cleaned over night by a brisk purge and an enema if required, such symptoms are at least not usual.

FRACTURE OF THE ELBOW.

GROSSMAN (*Medical Record*, Jan. 15, 1916) concludes a clinical paper on this subject as follows:

Every case of injury to the elbow where the diagnosis is doubtful should be placed in the acute flexion position until the diagnosis is cleared up by the Roentgen ray (except fractures of the olecranon process).

Begin massage and passive movements about the tenth day, and continue thereafter until the movements in the elbow-joint are normal and free from pain.

Guard against the displacement of the fragments when passive movements are begun, as faulty reduction causes periosteal proliferation that locks the joint.

Proper retention is just as important as proper reduction.

These few precautions will prevent a great deal of unnecessary suffering and disability which usually follow too long immobilization, improper reduction, and improper retention of the elbow-joint.

A CASE OF FAILURE OF UNION BETWEEN THE VAS DEFERENS AND THE TESTIS.

WHITEFORD (*Edinburgh Medical Journal,* December, 1915) reports the following case:

The patient, aged twenty-three years, was admitted for operation on a right inguinal hernia, which had existed since birth. The right testis was absent from the scrotum. The left testis was fully developed and in its normal position. The hernial sac, which extended into the upper scrotum, was incised and the testis found high up in the canal. The testis, half the size of its fellow, was well-formed except that the epididymis was ill-developed, and had a well-marked mesentery. Palpation and inspection failed to demonstrate a vas in connection with the testis. High up behind and adherent to the posterior wall of the sac a vas of normal size was found emerging from the internal ring. The vas was coiled, and tapered away to a small nodule measuring one-quarter by one-half of an inch, which on section proved to be the epididymis. The nodule was adherent to the sac wall and had no connection with the testis.

A radical operation was performed, and the testis was placed in the upper scrotum.

Non-union of the vas with the testis is scarcely mentioned in text-books on surgery, and references are few, but the condition is probably less rare than the scantiness of the literature would appear to indicate. Among those who have described this abnormality is A. C. Wood, from whose article the following extracts have been taken:

The undescended testis, in addition to its under-development, fails to acquire its usual relation to surrounding structures. The epididymis is not closely attached to the body of the gland, but is separated by a definite space.

The mesentery, common to the testis and epididymis, which normally is short and fixes these parts closely to the peritoneum, becomes elongated, forming a pedicle.

The testis and vas develop independently. The former, with the vasa efferentia and coni vasculosi (globus major), originates in the genital ridge on the mesial side of the Wolffian body, and the latter, with the globus minor, is derived from the Wolffian duct, which is situated on the outer border of the Wolffian body. The duct is originally closed at both ends, but, as growth continues, the testis and vas are joined by the development of intermediate tubes. When the cloaca divides into bladder and rectum, the lower end of the Wolffian duct becomes connected with the prostatic urethra through the ejaculatory duct.

The origins of the testis and vas being distinct, arrest of development may affect either or both.

Of six cases of retained testis dissected by Wood, five showed failure of union between the vas and the testis, and in one of these the vas stopped short of the prostatic urethra.

When aspiration of the globus major with a hypodermic syringe demonstrates the presence of spermatozoa, Wood suggests an anastomosis between the vas and the globus major, employing the technique devised by Dr. Edward Martin in cases of sterility following epididymitis.

TUMORS OF THE MOUTH.

In a collected review by BLAIR (*Surgery, Gynecology and Obstetrics,* February, 1916) it is stated that the majority of tumors occurring about the mouth are epithelial, and in after life with few exceptions these are malignant.

Carcinoma of the mouth is usually of the squamous, prickle-celled variety arising from the mucous membrane, though adeno-

carcinoma may arise from related glands, and basal-cell tumors do occur.

Carcinoma of the mucous membrane develops much more frequently in men than in women, in the proportion of about twelve or fifteen to one. It is a disease of the latter half of life, but has occurred in children. Pond cites a case of epithelioma of the palate in a boy of sixteen, and Hochenegg one in a child of six years.

The majority of all cases can be traced to leucoplakia or some local irritation, and syphilis is supposed to be a strong predisposing factor. The general spread of syphilis and the use of tobacco in Europe toward the end of the middle ages are credited with producing a sudden increase in the occurrence of cancer of the mouth. Like cancer elsewhere, its frequency is still increasing.

Some of these precancerous lesions exist for years, some for a few months. The actual cancers themselves as a rule are rather indolent at first; and the indolent stage may exist for a long time, even years; this is especially true of cancers of the lip. A smaller number show rapid growth from the first, and the lymph-nodes have been known to become infected within three weeks after the appearance of the primary lesion.

A peculiarity of the disease in this location is that though it always will in time infect the lymphatics of the neck and in some instances very early, in but one per cent of cases does it cause distant or general metastases. Even when the neck glands are extensively involved, it is often curable, and apparent fixation of these nodes does not necessarily mean that they are inoperable, as it is only late that they become fixed to the spine and the carotid artery. Removal of all the structures of one side, with the exception of the internal and common carotid arteries, is not incompatible with life. In an old person with sclerotic arteries, tying the common or internal carotid arteries is equivalent to a death warrant.

The virulence of cancer of the mouth varies in different locations; and as a general rule the operation becomes more serious the further back in the mouth the growth occurs.

With perfected technique, radical excision with or without the use of the actual cautery is the one means that holds out promise for advanced cancer; and from very poor beginnings this method has now reached a stage of substantial achievement and with far greater promise for the future. The two causes of poor results are incomplete operation and late treatment. It is difficult to conceive of more radical operations than are now being practiced, but in regard to the average time at which the disease is brought to treatment, there is much room for improvement. That this unfortunate state of affairs is through educational efforts being radically improved will be shown in the study of the history of statistics of cancer in various parts of the mouth. From these it would seem not improbable that at no distant time the percentage of cures for cancer of the mouth, with the possible exception of those arising in the upper jaw, will be higher than in any other part of the body.

Cancer of the tongue, like cancer arising in other parts of the mucous membrane of the mouth, is almost without exception of the squamous type; but two reported cases of columnar epitheliomata arising in the tongue came to the author's notice. Seventy-five per cent or more arise in some previously existing lesion, most commonly a leucoplakia. The belief that leucoplakia is a syphilitic lesion is constantly growing, and some later writers state that the proper treatment of syphilis will go far in the elimination of cancer of the tongue.

The importance of alcohol, spices, and tobacco as primary etiological factors is less apparent than formerly believed; but these, as well as mechanical irritation, are still to be reckoned with.

The age of the patient is usually between forty and sixty years, and the predisposition increases with age; but 30 cases are recorded in patients below thirty years, 8 in males and 22 in females; and on the whole the disease is much more common

in men, the average being about 85 per cent. This latter fact has been accepted as one evidence of the rôle of tobacco as a factor, but it has been shown by von Winiwarter that the Oriental women who smoke are not more subject to it than non-smoking women of the Occident.

Of the precancerous or very early cancers of the tongue Butlin cites the following five conditions as the most characteristic and important: "(1) A little plaque-like, hard sore, smooth and polished, but neither ulcerated nor excoriated. (2) The transformation or replacement of a simple ulcer by a cancerous ulcer, which only differs from the simple ulcer by feeling a very little stiffer and a very little firmer. (3) The transformation of an entire plaque of leucoplakia into a plaque of cancer. The difference is marked by very slight thickening, a denser white, furrowing and fissuring in various directions, but without excoriation or ulceration. (4) The transformation of one small area of a leucoplakia tongue into cancer, only marked at first by very slight and superficial hardening. (5) A white. warty growth or a compound wart, neither broken nor ulcerated, and feeling at first as if it were fixed to the mucous membrane, and quite superficial." The most frequent form is the papilloma, especially one growing in a previously existing leucoplakia; the most infrequent is a submucous nodule.

Bloodgood has recently made the following suggestions:

That heretofore the tongue removals have been too extensive.

That leaving the floor of the mouth intact predisposes to recurrence.

That the removal should be done with the actual cautery.

That leaving the jaw-bone on the affected side after the removal of the floor adds to the operative mortality.

These premises have not all had the support of the most experienced.

Almost all writers have warned against not removing sufficient intra-oral tissue, most recurrences being in the mouth, and Lenthal Chealle has demonstrated cancer-cells in the muscles of the tongue far beyond the apparent site of invasion. Butlin, however, was more conservative of the mouth tissues than most others, and cites that 102 out of 200 of his cases either died of recurrence at some other site or remained alive and well for three years without mouth recurrence; and in 33 of these local recurrences the disease was so extensive at the time of operation as to preclude wider excision. This still leaves 65 out of 98 cases that had local recurrence in which a more extensive local operation might possibly have saved some.

The necessity for the removal of the floor of the mouth in all cases is answered by Butlin in the negative, he stating that he had already done this, and that in only two of his cases could it have been reasonably supposed that recurrence was due to the disease in the tissues that were left between the primary mouth operation and the neck dissection. In some of the Kocher-Langenbeck operations the floor, the intra-oral growth, and the neck glands are removed in one piece.

Butlin has been the strongest opponent to the use of the cautery, believing that hard scars predispose to cancer. Kocher has always favored cutting with the actual cautery, and this is the oldest form of operation.

As to the question concerning leaving the jaw on the affected side increasing the operative mortality, almost all series of operated cases have hitherto shown that removal of a part of the jaw increases the postoperative mortality about 300 per cent over the intra-oral operation. In support of his contention, Bloodgood states that he has operated upon 14 cases in the past five years by his newer methods without a postoperative death and only one recurrence, the latter in a secondary case—a striking record—and if borne out by a larger series over a longer period will leave no doubt of the correctness of his ideas.

Untreated cancer of the tongue ordinarily will survive a little over a year. The results of operation have been variously estimated, but with the exception of the

last series from Johns Hopkins, Butlin's results are by far the best. In 168 traced cases 33.92 per cent survived for periods varying from three to twenty-two years, with an operative death-rate in all cases of 10 per cent. In the latter half of his whole series his percentage of cures rose to 41.55 per cent. The more recent Johns Hopkins series show 50 per cent cures, but the number of cases is very much smaller and the reviewer could not make out upon just what basis this 50 per cent cures for the past five years is figured. Many series show results far inferior to these, the main determining factor being the age of the cancer when treatment is instituted. There is reason to hope that in a few years the percentage of cures will be nearer to 100 than 50 per cent, and this will be due to education rather than to operating technique.

In cancer of the lip the disease may be dormant in the lymph-nodes for years after the primary sore is cured, and then become active.

Local excisions are still being practiced, though this is largely through ignorance of the more recently established facts, but in spite of this the results of local operation for early growths are extremely good.

A lesion may exist for a few months to years before it becomes microscopically malignant, but any wart as large as the tip of the index-finger is almost certainly malignant. The history of every case of fully developed cancer of the lip reveals the fact that at some period during its presence it presented characteristics that were identical with lesions known to be benign, and therefore Bloodgood concludes that there was a precancerous stage in each, a time when it was a purely local disease.

It occurs in increasing ratio from twenty years on, but may occur before. Fifty-five to sixty years is the favorite age, and as a rule the younger the patient the more malignant the growth. It is much more frequent on the lower lip than on the upper. On the lower lip the proportion of prickle or cubocellular cancers to the basal-cell cancers is between fifty and seventy-five to one; on the upper lip it is three to one. Its occurrence is six times as frequent laterally as in the midline; 90 per cent are in men, and it is rare in the negro. Very rarely the skin surrounding develops a cancerous eczema.

The block excision of all lymph-bearing tissue of one or both sides of the neck is needed only exceptionally. As a rule the removal of one or several groups of glands, as the submental, submaxillary, and upper deep cervicals of the affected side, is sufficient. In advanced cases the most radical operation may be insufficient. The submucous lymph streams are not supposed to cross the midline, while the cutaneous ones do. This has been taken as a basis in deciding as to whether the lymph-nodes of one or both sides are to be removed. If the growth involves the angle of the mouth the buccal group should be removed.

About the throat, nose, and its sinuses, where ciliated epithelium is found, this variety is first replaced by squamous epithelium before it shows recognized signs of malignancy. Basal-cell carcinoma may develop in the antrum; it may be presumed that it is rare. Unless due to an extension from the lips or cheeks, carcinoma of the jaw is almost exclusively a disease of elderly persons. It can arise only from epithelium, and in most instances comes primarily from the mucous covering of the gums or the lining of the antrum.

Broadly, there are two clinical types of carcinoma of the jaws: the hard, ulcerating type, which usually appears on the lower jaw; and the soft, medullary carcinoma, which is found in the antrum and upon the oral surface of the upper jaw.

The malignancy of medullary carcinoma when at all advanced is always evident from the rapidity and impartiality with which it invades all tissue with the exception of the teeth and eyeball.

The prognosis of carcinoma of the body or surface of the maxilla is usually considered to be very bad.

The treatment is free excision of the primary growth, and if this is on the alveolar surface of the upper jaw or on the lower jaw, excision of all of the lymph-

nodes of that side or both sides of the neck. The plan of excision of the primary growth should correspond to its location and extent. Carcinoma invades all tissues, and the excision should be planned to include all tissues to the extent of 1.5 to 2 cm. beyond the visible margin of the growth.

Cancer of the cheek remains localized longer than cancer of the tongue or floor of the mouth, but tends early to involve the intermaxillary fold. For ulcerated carcinoma of the lower jaw which has apparently not invaded the tooth sockets, it may be well, all things considered, to retain 5 mm. of the lower border of the body of the jaw.

Many writers in their descriptions of epulis follow the literal meaning of the term and include any tumor appearing upon the gums. The most succinct and intelligent description is in a recent paper by Ivy, who describes it as a circumscribed connective-tissue growth from the alveolar ridge covered with normal mucous membrane, except in so far as the latter may undergo secondary ulceration due to pressure necrosis, infection, etc. It may be confounded with papilloma, epithelioma, etc. There are hard and soft epuli. The hard epulis is slow growing; it may be years before increase in size is perceptible; it has a sharp line of demarcation, arises from the surface of the gum, and is slightly darker in color than the normal mucosa. It is a pure fibroma, occasionally myxomatous, and may contain bone. The soft form is usually of rapid growth, arises from the interior of the bone, is dusky-red, and may be partially covered by a shell of bone. *X*-ray may show the bone clearly eroded. These tumors belong to the giant-cell or myeloma type and may contain bone or cartilage.

Confusion has arisen from describing the growth under different names and from describing entirely different growths under epulis. Giant cells are strong presumptive evidence of non-malignancy even if the tissue appears to be sarcoma.

Tumors of evident endothelial origin with giant cells scattered within the vessels are believed by Whitman and Ivy to be another and malignant group of giant-cell tumors. The unfortunate term sarcoma has led to needless resections. Kühner refers to 90 cases of epulis in the Tübingen clinic; the majority occurred between ten and forty years, and two-thirds were in women. Of 79 patients whose tumors were removed in the past thirty-five years, 72 were permanently cured, two died from recurrence, and five others were cured by a secondary operation.

The most interesting of the salivary gland tumors is the so-called "mixed tumor," which is most common in the parotid, appears in the submaxillary gland, rarely in the sublingual and lacrimal glands, in the palate, lips, and tonsils. It occurs about nine times more frequently in the parotid than in the submaxillary glands. Sturgis, quoting Wood, found that in 59 cases of mixed tumors, four were in the lip, two in the pharynx, two in the neck, one in the cheek, and one in the palate.

These tumors may be congenital or may appear late in life, but they most often develop between the ages of fifteen and thirty years and have a peculiar preference for the right side. They may arise within the substance of the gland or may be connected with it by a stalk, but they are supposed to always arise within the gland capsule. Parotid tumors may arise in front of the gland in the cheek, in the line of the mouth slit. Until they acquire or show malignant character, they are encapsulated, and at this time, unless situated very deep in the parotid, are easily removed. The gland may be found compressed and wrapped around a large tumor. When not malignant they are always sharply defined, but may be very lobulated. At first they are usually firm, but later may be cystic. In the submaxillary gland they usually grow toward the neck, but in the parotid the direction of their growth will depend somewhat upon their original starting-point; a deep tumor may grow toward the pharynx. After malignancy once becomes evident they infiltrate rapidly and may ulcerate through the skin. When malignancy develops complete extirpation should be prac-

ticed, including the lymph-nodes. The parotid gland cannot be completely removed without at least partial resection of the ramus. When the growth has gone beyond the capsule of the gland there is little hope of cure.

A report of the work carried out at the Radium Institute, London, from January 1 to December 1, 1914, shows that epitheliomata of the buccal, lingual, and pharyngeal mucous membranes are usually refractory, but the new method of burying a radium tube within the nodule has given encouraging results in cancer of the tongue. The best results in sarcoma are those of the tonsil and postnasal space. The results in nevi are good if blanching is accomplished with little pressure, while rodent ulcer is the disease which gives the best response to radium treatment.

Abbe says that radium is the only remedy for leucoplakia and a specific for giant-cell sarcoma, while Pfahler believes the best results are given by a combined treatment of excision or electrothermic coagulation together with Roentgen therapy.

Morson gives the effects of radium irradiation as follows:

Rapid degeneration of malignant cells near the radium tube.

Apparent enlargement of the cell nuclei beyond the degeneration area.

Loss of the reproduction function of the cancer-cells. Thrombosis occurs, which cuts off the supply of blood to the tumor. In a few cases decrease in the size of the gland metastases was noticed.

That radium promotes instead of checking cancer is the conclusion forced upon Rovsing by the tragic experience of whipping small indolent growths into rapid malignancy. He says his failure is not due to faulty technique, as the applications were made according to the approved methods in vogue at Heidelberg. He gives citations of cases. Czerny and Kaan found increased malignancy of tumors of the mucous membrane of the cheek after radium treatment; Wickham and De Grais had similar results.

Lazarus's experience in the radium treatment of malignant tumors was based on 600 cases. Even the inoperable tumors of the pharynx which are difficult of access sometimes showed marked improvement after this treatment, while tumors of the mucous membrane of the cheeks, and especially tumors of the mucous membrane of the mouth, are refractory.

Even the advantage of radium in combination with excision is not an unequivocal practice on account of the suspicion that has arisen that the use of the rays may accelerate rather than retard the proliferation of remaining cells after incomplete removal.

BULLET WOUNDS OF PERIPHERAL NERVE TRUNKS.

LYLE (*Surgery, Gynecology and Obstetrics,* February, 1916) summarizes an article on this subject as follows:

Primary nerve suture is rarely indicated in war time.

Unrelieved, overstretched muscular tissue leads to fatty degeneration and consequent loss of contractility.

A paralytic deformity with shortened muscle and limited joint movement, in the majority of cases, is the result of ignorance or neglect.

It is imperative, whether the nerve is divided or not, that the paralyzed muscles be relaxed and protected from strain by a suitable apparatus. Under no circumstances must this be deferred to the so-called after-treatment.

The postural prophylaxis begins with the reception of the wound and continues after the operation until voluntary motion is restored.

SUPPURATIVE PERICARDITIS.

RHODES (*Annals of Surgery,* December, 1915) observes that the pathology and symptomatology present very interesting features. There are two distinct sinuses in the pericardial sac—one, the larger, lying to the right of the large vessels at the base of the heart, and the other, a smaller one, situated along the right posterior edge of the sac, corresponding to the sternal angle

of the fifth intercostal space. In beginning exudates these sinuses fill first, and hold roughly 200 Cc. Even this amount of fluid can push the heart forward against the sternum. A small amount of pus in the pericardium can give no symptoms, aside from its constitutional evidences and the increased leucocyte count, and can be diagnosed with certainty only by the *x*-ray. This constitutes the first stage of the lesion, and one, unfortunately, very seldom diagnosed.

A second stage is instituted with the increase of the exudate up to the limits of elasticity of the sac. This stage is the ordinarily observed stage of physical signs. When, however, the limit of elasticity of the sac is overstepped by the amount of exudate, a third stage is seen, to which Rehn has given the name of Herzdruck. Rose calls it Herztamponade. It is produced by the intrapericardial pressure exceeding the intra-auricular pressure. In the slowly developing form of Herzdruck the symptoms are very striking. The patient is cyanotic, evidently in great respiratory embarrassment, even orthopneic in extreme cases. Pain in the left arm is a common symptom. There is precordial pain, increased by expiration, with a feeling of oppression in the chest. Edema of the upper thorax and one or both arms is often seen, aside from thrombosis. Some cases have shown slight rigidity and pain in the upper abdomen, usually on the left side. The veins of the neck are distended and the pulse is rapid and small. A very prominent symptom in the author's case, as in the cases of v. Eiselsberg and Harrigan, in which the intrapericardial tension was high, was great irregularity of the pulse. In very few of the cases is this found, and it would seem to be more dependent on great distention of the sac than on inflammatory irritation of the pericardium, as has been claimed by Heitler. The author's reason for this view was the instantaneous return of the pulse to normal frequency on opening the pericardium in his own case and the slower return in Harrigan's case after removal to the ward. Of course the mere withdrawal of fluid will not immediately relieve an inflammatory irritation, and if arrhythmia is to be explained as a result of pericardial inflammation, why do not the majority of cases of pericarditis show it?

The increase in the exudate pushes the heart forward, so that in the greater number of cases the heart was found to occupy a position directly against the anterior chest wall. Rehn, Brentano, Curschmann, and Schaposchnikoff hold that this is always the case, while Eichel contends that it is not always in contact, and even may occupy a posterior position. A study of the reported cases in which the position of the heart is mentioned shows that in four the heart is said to be anteriorly placed, and in two cases, those of Sibley (operated on by Mr. Lane) and Harrigan, it lay deep in the thorax, while Eichel reports that all his cases, as did the author's, had fluid between the heart and the anterior pericardium. However, the exceptions must not blind our eyes to the important fact that the heart is usually held anteriorly by the exudate.

Among the rarer symptoms Blechmann has called attention to the genu-pectoral position assumed by some patients. Hertz claims this to be pathognomonic, and of course due to the effort to relieve the large vessels of the backward pressure of the heart and exudate.

In the *x*-ray we possess a most valuable aid in diagnosis, especially in the early cases, and in children. In adults care must be exercised to avoid error in diagnosis, for in some of the early cases the radiograms have closely simulated those of aneurism of the first portion of the aorta. Purulent mediastinitis also presents a similar picture. No obscure chest condition presenting a high leucocyte count should be allowed to escape the *x*-ray, for in that direction may lie our sole opportunity to make an early diagnosis, while the fluid is still in the pericardial sinuses.

The combination of these special symptoms with the well-known physical signs of fluid in the pericardium and a high leucocytosis is sufficient to make the diagnosis. The leucocyte count runs high, 20,000 to 38,000, and it is well to remember that an

associated empyema or pneumonia may complicate both the leucocytosis and the physical signs. The liver is very often pushed downward, especially in large effusions, sometimes a handbreadth below the free margin of the ribs. In one case the diagnosis of liver abscess was entertained.

Aspiration of the pericardium, for treatment or diagnosis, must be most emphatically condemned. Fevrier has collected nine cases from the literature which were treated solely by aspiration with a mortality of 100 per cent, not a very encouraging percentage, even when compared with the high percentage following operation.

Mintz's method of operative attack is the latest addition to the already numerous avenues of approach to the pericardium. This method was proposed by him in 1903. As described by him it consists in an incision along the under border of the seventh costal cartilage. A skin and cartilage flap is now made, and opened from above downward. Access is now permissible to the extrapleural space, in which the pericardium can be opened without danger of injury to the pleura.

All the described methods have as their object the incision and thorough drainage of the pericardium. Certain lessons can be learned by study of the case reports. The exudate should not be allowed to escape too rapidly from the pericardium, for too rapid lowering of the intrapericardial pressure may result in sudden "still stand" of the heart, as occurred in Harrigan's case. It might even be advisable to aspirate the pericardium before incising it. If no exudate is observed anteriorly examine behind the heart, as it may be pocketed there. The sinuses must be thoroughly explored.

Free drainage must be maintained. The continuous action of the heart tends to force out the softer drainage materials, such as rubber tissue, while the experience of Tartarinow (quoted by Kolb) shows the danger of the rubber tube, which caused necrosis of the heart wall by pressure. V. Eiselsberg advocates stitching the pericardial sac to the muscle layer, while Gussenbauer sews it to the skin margin. This when possible should be done, as the incision tends to close very rapidly, but where there is extensive edema of the soft tissues, whether from anterior mediastinitis or from Herzdruck, as in Eliot's case and in the author's, it is impossible. Drainage of some description must be used, as a considerable portion of the fatal cases show no provision was made for permanent drainage. Fear of necrosis in the writer's case led him to discard the rubber tube in favor of rubber tissue, which was passed at each dressing into both sinuses of the sac with dressing forceps after irrigating the sac with salt solution. This method of drainage proved amply sufficient, as the post-mortem showed, although the daily irrigation and replacing of the drains was very painful.

THE ABDOMINAL SKIN-FLAP IN RADICAL AMPUTATION OF THE BREAST.

ELSBERG (*Annals of Surgery*, December, 1915) notes that in the last two years he has operated on patients with malignant disease of the breast who had metastases in the skin of the chest wall below the breast, so that the radical removal of the disease required a wide-spread excision of skin and subcutaneous tissue. The large defect that remained could not have been closed by any of the plastic methods ordinarily used, and skin-grafting would have been necessary had not the raw surface been covered over by means of a large flap of skin from the abdominal wall.

The skin of the abdominal wall is generally very lax and receives abundant blood supply from branches of the arteries which run through the wall of the abdomen from behind forward. If the base of the skin-flap is not too small the tissues will be well nourished with blood, and there is no danger of sloughing or of marginal skin necrosis. After the flap has been raised from fascia and slid upward into the new position, there is no difficulty in closing the defect in the abdominal wall with interrupted sutures. It is surprising how much skin can be used for the flap and sufficient remain to close up the defect in the abdominal parietes without

much tension. Size and shape of the abdominal skin-flap will depend upon size and form of the raw surface on the chest wall.

The abdominal skin-flap is necessary only in those cases in which the defect left after radical amputation of the breast cannot be closed by any of the methods ordinarily in vogue; it is useful after extensive removal of skin, and makes skin-grafting unnecessary.

PERFORATING WOUNDS OF THE ABDOMEN.

MEYER and TAYLOR (*Lancet*, Jan. 1, 1916) note that the usual symptoms and signs of intraperitoneal lesions, such as pain, tenderness, rigidity, and vomiting, are generally markedly prominent in gunshot cases. Entire absence of rigidity where a perforation of the gut is certainly present is observed in moribund cases only. In their experience at least one case was lost where the peritoneum was found to be intact and the track of the bullet was entirely extraperitoneal, yet the bowel had been perforated; under similar circumstances they would now open the peritoneum. Chloroform followed by ether was used routinely. Subcutaneous salines were given under the breast. In the 50 cases operated upon small perforations were sutured; larger wounds and multiple rents or perforations lying very closely together, endangering the vitality of the operative area, were resected. The peritoneal cavity was rapidly but carefully mopped and drainage was instituted for from twenty-four to forty-eight hours. In the after-treatment, half a cubic centimeter of pituitrin was given the second or third day, and at the same time two ounces of glycerin were injected into the rectum, and repeated the following day if necessary. In their experience the action of pituitrin is of inestimable value in promoting intestinal peristalsis. About the fifth day an enema was generally given, except where the pelvic colon had been sutured. Regurgitant vomiting was treated by stomach lavage, repeated as often as necessary. Out of the series of 50 cases there were 17 deaths. The usual cause of death was primary hemorrhage combined with the element of shock always present. Next in order of prominence was general peritonitis, which takes from about forty-eight hours onward to bring about a fatal issue. A few cases seemed to die from pure shock.

Of the 50 cases operated upon, 17 died. There were 41 cases not operated upon during the same period, either because the patients were moribund or because no perforation was suspected, or because conservative treatment was considered advisable. Of these seventeen died. Of the cases deliberately treated conservatively not a single case died, although bullets had traversed the peritoneal cavity quite obviously in a number of these. The indications for conservative treatment were the general appearance of the patient, absence of shock, the condition of the pulse, the state of the abdomen, and the course of the bullet.

RECENT WORK IN RADIUM, RADIOLOGY, AND ELECTROTHERAPEUTICS.

FINZI (*The Practitioner*, February, 1916) quotes Dachtler on the postoperative prophylactic treatment of carcinoma of the breast. Before commencing the investigation, he visited many institutions to study the technique employed and the results obtained. He found that whenever unfavorable opinions of the treatment were given, almost invariably on investigation, faulty methods of technique were discovered. Dachtler's cases, which were treated more than five years ago, number 29; of 16 of these which did not show macroscopic involvement of the axillary glands, 13 were still alive, after over five to eight years, while the other three died of intercurrent disease (in two of these no sign of recurrence was found, while the third died of endothelioma of the brain and showed no recurrence of the original carcinoma). Of the 13 cases with marked axillary involvement, nine died within six months after the operation; all but one of these were free from any local recurrence. The other four lived varying times up to five years, and

got no recurrence. He notes that some patients had recurrence on the opposite side of the chest, while the treated side remained free.

Treatment was given every day for the first fortnight, with an anode distance of 12 inches, and through a leather filter. After a fortnight's interval daily treatments were again given, until 30 or 40 had been administered, 35 being the average number. If too severe a reaction occurred, treatment was discontinued for one or two weeks. A deep tanning of the skin was produced. He does not recommend any subsequent treatment.

Dr. Levin presents a most fair-minded review of the relation between the surgical treatment and the radiotherapy of cancer. After examining the statistics, he comes to the conclusion that rather less than 30 per cent of cancer patients can hope to be cured by surgery alone. If radiotherapy should change the figure only to 35 per cent, the method of treatment is more than justified. Radiotherapy acts by virtue of its selective action, the injury caused by the rays to the cells of the growth being greater than that caused to healthy tissues. He advocates a combination of surgical treatment with radiotherapy. With regard to technique he employed 50 mg. of radium bromide screened by 0.5 mm. of silver and generally 0.75 mm. of brass in addition, paper and india-rubber being also used to cut off the secondary rays. For extensive growths this amount is applied for twelve hours every other night until 100 hours have been consumed, and then, if necessary, another shorter course after four weeks. *X*-rays are used in a method like that of Krönig and Gauss, except that fewer and larger ports of entry are employed. Three millimeters of aluminum are used as a filter. At the time of writing his experiments with the Coolidge tube were not far enough advanced for publication.

Arcelin has an important paper on the difficult and intangible subject of late *x*-ray effects, of which he has collected eight cases, in two of which, however, the only effect after the conclusion of all *x*-ray treatment seems to have been the development of telangiectases. He does not distinguish between cases treated by filtered and unfiltered rays, but a study of his cases bears out Speder's contention that late reactions only occur when filtered rays have been used, unless the unfiltered dose has been sufficient to produce a burn. Arcelin points out that these late effects are more likely to develop when large areas have been treated. He shows that when a patient has been treated with *x*-rays, and received a large dose, a subsequent treatment, after an interval of a year or more, with similar doses, may sometimes provoke a dermatitis, whereas none had previously developed. He follows Nogier and Regaud in the belief that the use of thicker filters (3 to 4 mm. of aluminum) will prevent the occurrence of these reactions.

GUNSHOT WOUNDS OF THE ABDOMINAL CAVITY.

Hays (*Surgery, Gynecology and Obstetrics,* February, 1916) records eighteen cases of gunshot wounds of the abdominal cavity. Of these only 13 had perforation of the hollow viscera with 7 recoveries, giving a recovery percentage of 53.84. Five cases did not have any injury to any part of the intestines. Of this number four recovered.

The greatest number of perforations in any one case was 16. The time of operation after injury in those cases which recovered was from two to twelve hours. In those cases in which death occurred, the time of operation after injury was from seven to fifty-seven hours. The average time of operating after injury in those who recovered was about five or six hours; for those who died the average time was about seventeen hours.

Symptoms of gunshot wound of the abdominal cavity are quite frank and vary but little: rigidity of the abdominal muscles, tenderness of the abdomen to pressure, and the wound of entrance. Distention of the abdomen is usually late. Dulness may be present from hemorrhage. Treatment is entirely operative, which should be early.

POLLUTIONS IN THE MALE.

Under this engaging title HUHNER (*New York Medical Journal*, Feb. 5, 1916) states that boys approaching adolescence should be told of the probability of the occurrence of wet dreams from time to time, so that they may not be frightened at their appearance and run to the first advertising quack they hear about. It seems to be the opinion among young adults that the appearance of a pollution is a sign that their sexual organs are ripe and demand their exercise in coitus. This opinion should be carefully warned against.

Every effort should be made to bring up the young man with as pure thoughts as possible, and to keep him away from suggestive literature and plays. It were well if he would abstain from alcoholics, especially beer, for these stimulate the sexual centers as well as the genitals themselves. He should take as little tea and coffee as possible. Cold bathing in the morning should be encouraged, but hot baths should be taken as little as possible, especially at night. He should empty his bladder before retiring, and arise as soon as he awakens, so as to diminish, as much as possible, the morning erection, which leads to erotic thoughts.

Normal men should be told in plain and definite language the significance of pollutions, their harmlessness if not too frequent, and the measures advocated in the prophylactic treatment just mentioned should be enforced if possible.

In patients suffering from pathological pollutions, the measures just advocated under prophylaxis must be enforced. There is little use in treating these patients, if they will not abstain from alcoholics, tea, coffee, and all kinds of sexual excitement. Spooning is especially to be interdicted.

The first thing to be done is to stop the pollutions. Nothing succeeds so well here as the bromides in large doses—fifteen grains of sodium bromide three or four times a day, well diluted, after meals. The primary effect is really remarkable; patients with three or four pollutions a week quickly drop to one in one or two weeks. The psychic effect of this rapid diminution in the pollutions is also well marked. As the pollutions decrease in numbers, the bromides should be given less and less often, until only at bedtime, and finally should be stopped altogether.

At the same time we must relieve the congestion or other pathological condition in the posterior urethra. For this purpose Huhner has tried various expedients, but has found the instillation of weak silver solution through the Bangs sound syringe to be the best of all. Very strong cauterization of the verumontanum, as recommended by some German authorities, he has found to be of no use whatever.

Nor has he found the psychrophore of much use in these conditions, but must admit that he has not tried it often enough to give a final opinion. According to German authorities, it must be employed every other day from five to twenty minutes at a time. Now, in private practice, he has not been able to induce patients to come every other day when suffering from no other condition than pollutions, and in the author's dispensary class it takes entirely too much time to give a large number of patients twenty minutes each, every other day, for a long period. In the few dispensary cases in which he has conscientiously given it a trial, however, he has obtained no good results; but, as stated above, the experiments have been entirely too few to warrant a decisive opinion. Even the German authorities, who have large experience with this method, say that some cases are made worse by it, and that they cannot tell beforehand whether it will benefit or harm in any particular case. They also concede that even in cases in which it does good, temporary impotence often follows.

In defecation and urinary spermatorrhea, the bromides do not act as quickly or as positively as in the other forms. On the theory (which has not been proved) that the condition is due to a weakness of the sphincters of the ejaculatory ducts and of the seminal vesicles, as well as to a weakness of the musculature of the seminal

vesicles, the author has tried strychnine in small and large doses, but without result. The main treatment in these cases is to avoid constipation, the accumulation of hard fecal masses, by proper catharsis, and the treatment of the prostatic urethra as above indicated.

In urethrorrhea it is only necessary to instruct the patients about the harmfulness of spooning, and their discontinuance of such and similar sexual excitements will generally bring about a cure. If necessary, a few silver nitrate instillations in both the anterior and posterior urethra will usually cure the patient.

TREATMENT OF CONGENITAL SYPHILIS.

SCHALEK (*Urologic and Cutaneous Review*, January, 1916) in the treatment of the pregnant mother insists on the intensive use of mercurial injections, the iodides, and the intravenous administration of salvarsan. It is wiser, if the treatment is begun during the early months of pregnancy, to employ the small doses of salvarsan, 0.2 to 0.3 to 0.4 gramme, rather than the full dose, although it has been shown that salvarsan does not seem to increase the tendency to abortion or hemorrhage. The total amount of the drug given should be at least 1.5 grammes, and larger amounts are safer.

A normal placenta does not allow arsenic to penetrate. The syphilitic placenta does. Findlay and Robertson report that in no case was the course of the pregnancy interrupted by such treatment. The mothers felt better rather than worse. It has been found that in the case of every syphilitic child the spirochæta travels along the umbilical cord and infects the fetus. Of 128 women with latent lues, who were treated with mercury and iodides, 88 per cent living children clinically well resulted, the remainder showing signs of the disease. The effect of mercury, unless long continued, is fleeting.

Fournier reports the case of a syphilitic woman pregnant eleven times. She had no treatment whatsoever during the first seven pregnancies. She had seven still-births. During the eighth and ninth pregnancies energetic mercurial treatment was given. Two healthy children were born. No treatment was taken during the tenth pregnancy and the child was born dead. In the eleventh pregnancy treatment was taken, and the woman brought forth a healthy child.

When salvarsan is combined with mercurial therapy remarkable results are obtained, Sauvage reporting 93 per cent and Bourret and Fabre 100 per cent cures. These latter statistics may be found somewhat enthusiastic, for it must be admitted that many cases showing congenital syphilis after reaching six to twenty years of age have shown no manifestations of the disease during the first few years of life.

In the apparently healthy child with negative Wassermann and negative luetin, from parents known to have active syphilis, it is well to treat this child with mercury. For the injection of salvarsan in children the jugular vein has been employed, and likewise the veins of the scalp, but whereas these routes are excellent in the case of neosalvarsan, where highly concentrated solutions can be used and the operation quickly finished, it is difficult to keep the child quiet enough for a sufficiently long period of time to permit the steady flow of 50 to 100 Cc. as is the case when old salvarsan is used. The first dose of the arsenic preparation should be a small one. Neosalvarsan has a wider field of usefulness in congenital syphilis than in the acquired form because it can be given in high concentration. The veins of the scalp should be chosen in infants up to two years. The initial dose can be diluted with 3 or 4 Cc. of saline or freshly distilled water in the ordinary Record or Luer syringe. Slight reactions occur at times.

Mercury is as available in the treatment of inherited syphilis as salvarsan. The intramuscular injection is not desirable in infants because of the delicacy of their tissues and the readiness with which they perish. Inunctions should be given six days out of the week. In very small children and infants bichloride baths are satisfactory. Twenty or thirty grains of bichloride mixed with an equal quantity of ammonium

chloride should be used. Oral medication is not satisfactory. The iodides should never be given without mercury or salvarsan; they do not cure syphilis. Destruction is accomplished by mercury and arsenic. Iodides sweep away the waste matter. Three deaths have been recorded incident to involvement of the cardiovascular system during the acute stages of the disease. There is the widest daily variation in the strength of the Wassermann dependent upon no known factor. The pathology of syphilitic conditions of the kidneys centers about the vascular structures in the kidney substance. In chronic nephritis the albumin may disappear following salvarsan and iodides. Patients are known not to have had albumin for three or more years.

NEISSERIAN PROCTORRHEA.

MAPES, of Louisville, under this title (*Urologic and Cutaneous Review*, January, 1916) quotes Baer to the effect that rectal gonorrhea is found in nearly 40 per cent of all cases of gonorrhea in women. Schmidt records 21.6 per cent of rectal involvement in gonorrhea. In no case was the discharge of pus noted from the anus. The mucosa was red and bled easily. The changes were most marked in the sphincteric region. It is believed by Bacon that employing for enemata the same syringe and nozzle previously utilized for vaginal douching is more often than otherwise responsible for infection of the rectal mucosa and the development of Neisserian proctorrhea.

Berndt reports eighteen cases of rectal stricture due to Neisserian infection. Stenosis usually occurs one to four inches from the anus, but may extend to the sigmoid flexure. The treatment consists in regulating the bowels, employing antiseptic douches, and in dilating the stricture with bougies.

Mapes believes that Neisserian proctorrhea in the male is much more common than is suspected by the profession. Treatment consists in regulating the bowels, in employing antiseptic douches, in dilating the stricture with bougies which should be left *in situ* as long as circumstances will permit, in maintaining the feces soft, healing the ulcers, and destroying the infective agent.

REVIEWS.

PULMONARY TUBERCULOSIS. By Maurice Fishberg, M.D. Illustrated. Lea & Febiger, Philadelphia, 1916. Price $5.00.

The purpose of this book is to supply the general practitioner with information concerning the etiology, diagnosis, prognosis, and treatment of pulmonary tuberculosis, its clinical forms and common complications. The author, therefore, has a large field to cover, and we can truthfully say he has covered it well.

Naturally our greatest interest is in that portion of the text which is devoted to treatment. This covers, very properly, almost two hundred pages, out of the 627 that make up the volume, and is divided into fourteen chapters, beginning with Indications for Treatment, considering the General Management of the Case, Climatotherapy, Institutional Treatment, Drug Treatment, etc.

We are surprised to find that the author says nothing of the value of camphoric acid in controlling the night sweats of phthisis, and also surprised that he advises the use of alcohol in some form to prevent the sweating. It has been our experience that the use of whisky or brandy, by dilating the peripheral capillaries, has a tendency to increase sweating. We should think that the use of a 3-per-cent lysol solution to sponge the surface of the body, because of its disagreeable odor, would tend to nauseate the patient.

The sections which are devoted to hemoptysis are competent and interesting.

We note with interest that the author has confidence in the use of carbolic acid and creosote in this disease, and also that he thinks that gelsemium combined with cannabis indica is a safe anodyne. We would

have supposed that the former drug was too depressing.

There is no doubt that a good summarization of our knowledge of tuberculosis is needed at this time, and the general practitioner will find Dr. Fishberg's book a useful one, as it is essentially the book of a clinician rather than that of the laboratory investigator. The various problems of tuberculosis with which the laboratory investigator is chiefly concerned are, as one would expect, not sufficiently fully discussed in this volume to make the book popular with this class of workers.

REPORT OF THE FIRST EXHIBITION TO SOUTH AMERICA IN 1913. By Harvard School of Tropical Medicine. Harvard University Press, Cambridge, 1915.

It is not often that a group of medical men have it in their power to present, not only to their professional colleagues but to the scientific world in general, so valuable a contribution to medicine and science as is this handsome volume of 220 pages, which is illustrated with beautiful colored plates, as well as with black-and-white figures. The members of the expedition were Dr. Richard P. Strong, Professor of Tropical Medicine, Harvard University Medical School; Ernest E. Tyzzer, Assistant Professor of Pathology; Charles T. Brues, Assistant Professor of Economic Entomology; A. W. Sellards, Associate in Tropical Medicine; and J. C. Gastiaburu, Director Municipal Laboratory of Hygiene, Lima.

The book is divided into nine parts. It opens with a general introduction to the programme of the expedition, then gives a careful survey of Oroya Fever and Verruga Peruviana. These two diseases take up by far the greater part of the volume. Their discussion is copiously illustrated. The authors have been able to prove that these diseases are not only not identical, and that they are not representations of a first and second stage of one malady, but that they are entirely different infections. Every possible aspect of this interesting and important subject has been examined into. In this country, where these two diseases practically are never seen, these studies have not the practical importance that they have in South America, where these diseases are prevalent and induce a high mortality.

Those of us who are unable to add so materially to the sum of human knowledge and who also are prevented from carrying out studies which in their results tend to diminish a vast amount of suffering cannot but look with envy upon the opportunities which these investigators have been enabled to embrace, neither can we read their report without being thrilled with admiration for the splendid quality of their work and the excellent way in which they have made their report.

THE BASIS OF SYMPTOMS. The Principles of Clinical Pathology. By Dr. Rudolph Krehl. Authorized Translation from the 7th German Edition by Arthur Frederic Beifeld, Ph.B., M.D. With an Introduction by A. W. Hewlett, M.D. Third American Edition. Price $5.00.

It will be recalled that the first two American editions of this book were prepared by Dr. Hewlett, who now writes the introduction to the third American edition. The present issue deals more thoroughly than was possible in its predecessors with the noteworthy advances which have been made in medical science, with particular reference to the subject of Cardiac Arrythmias, Leukæmia and Pseudoleukæmia, and such phases of infection and immunity as Anaphylaxis, Complement Fixation, Chemotherapy, the Phenomena of Gastric Secretion and Motility, Renal Functional Tests, and Glands of Internal Secretion, Gout and Diabetes. A new chapter has been introduced on Constitutional Diseases and Diatheses.

Like most German works, comparatively little attention is paid to American contributions, but Dr. Beifeld, exercising his editorial prerogative, has inserted many notes which show how much Americans have done in medical science within the last decade.

The book is, as its title indicates, one

upon clinical pathology, but the object of its text is to show the relationship between clinical pathology and symptomatology; it, therefore, in many instances goes further and describes briefly functions of normal organs b e f o r e discussing pathological changes in function. Throughout the text emphasis is laid upon certain sentences and parts of sentences by printing them in large type. This does not make a particularly good-looking page, but it is useful to the student and ordinary reader. Copious bibliographies are attached to important chapters.

The book is a valuable one for the active practitioner and can be studied and read with much advantage by the undergraduate, who, by its pages, will learn to correlate symptoms and pathological changes in function and tissue.

ENDEMIC DISEASES OF THE SOUTHERN STATES. By William H. Deaderick, M.D., and Loyd Thompson, M.D. The W. B. Saunders Company, Philadelphia, 1916. Price $5.00.

Dr. Deaderick is already well known to the medical profession by reason of valuable contributions which he has made on the subject of malarial infection. With Dr. Thompson, he now presents us with a book dealing with the Endemic Diseases of the Southern States. Although the authors fully recognize that many of these diseases are widely disseminated throughout the Northern States, the fact that they are most prevalent in the southern tier of States leads to their inclusion in this volume. The eight chapters upon Malaria are contributed by Dr. Deaderick, as are also the eight which are devoted to Blackwater Fever. The eight chapters upon Pellagra and the eight upon Amebic Dysentery are written by Dr. Thompson and Dr. Deaderick. Those upon Hookworm Disease, eight in number, are by Dr. Deaderick. The closing chapter deals with Other Intestinal Parasites than the Hookworm and is by the senior author. The book is needlessly large because it is printed on heavy paper with wide spacing between the lines, but the good size type with which it is printed makes its reading easy and enjoyable. A careful description of the measures which should be taken to prevent the spread of these diseases which are transmissible is given, and definite directions are added as to the treatment which the authors think will prove most successful. It is an interesting contribution to an important subject and doubtless will be widely read and heartily approved of by all physicians, who frequently come in contact with the maladies which are discussed.

THE DESCRIPTION OF AN OPHTHALMOSCOPE. Being an English Translation of Von Helmholtz's "Beschreibung Eines Augenspiegels" (Berlin, 1851). By Thomas Hall Shastid, A.B., A.M., M.D., LL.D., F.A.C.S., Superior, Wis. Chicago: Cleveland Press, 1916.

More than sixty years have elapsed since Helmholtz published his description of "An Ophthalmoscope for the Investigation of the Retina in the Living Eye," but for the first time there appears in our language a translation of the Helmholtz monograph by Dr. Shastid, who is to be congratulated upon the accuracy and clearness with which he has rendered into English the paragraphs of this classical, indeed, one may say this immortal, essay. The profession is deeply in Dr. Shastid's debt for many articles on the history of ophthalmology and biographical sketches of the great masters of this science and art, and now he has added to these obligations by publishing the translation to which this notice makes reference. Surely each student of medicine, and especially each student of ophthalmic medicine, will desire to possess and to read this treatise, which, to quote its opening paragraph, "contains the description of an optical instrument by which it is possible in the living eye to see and recognize exactly the retina itself and the images of luminous objects which are cast upon it." This instrument thus introduced revolutionized the study of ophthalmology, and was the means of calling into existence the science of medical ophthalmoscopy. The value of the monograph has been enhanced by a number of interesting foot-notes written by the translator. G. E. de S.

SOCIAL TRAVESTIES AND WHAT THEY COST. By D. T. Atkinson, M.D. Vail-Ballou Company, New York, 1916.

This book deals in an interesting way with one of the great problems of all times. It contains nine chapters, the titles of which are as follows: Conventional Prudery and its Results, The Price We Pay for Ignorance, Innocence the Burden Bearer, The Relation of Social Diseases to Environment, Potent Reasons for Harmful Social Conditions, Unwholesome Social Standards and Disease, The Ounce of Prevention, The Franchise for Women and its Relation to Social Reform, and The Promise of Economic Responsiveness. The author recognizes the difficulty of the problem; he also is fully cognizant of the injustice meted out to those suffering as a result of the social evil, and he lays particular emphasis upon the importance of ignorance in its constancy and dissemination.

THE MEDICAL CLINICS OF CHICAGO. January, 1916, Vol. I, No. 4, and March, 1916, Vol. I, No. 5. The W. B. Saunders Company, Philadelphia, 1916. Price per year, paper $8.00, cloth $12.00.

The Medical Clinics of Chicago are supposed to be stenographic reports of clinical lectures delivered by various members of the staff of each of the large Chicago hospitals. For this reason they cover all of the problems which are met with in the medical service of general hospitals, and the views expressed are those of men of large experience in hospital and private practice. In some instances instruction is given in the form of questions and answers; in others the reports are in the ordinary stenographic style.

THE PRACTITIONER'S MEDICAL DICTIONARY. By George M. Gould, A.M., M.D. Third Edition, Revised and Enlarged, by R. J. E. Scott, B.C.L., M.D. P. Blakiston's Son & Co., Philadelphia, 1916. Price $2.75.

Dictionaries prepared by Dr. Gould have been before the profession for the last twenty-five years, varying from the very large illustrated dictionary of Medicine, Biology and Allied Sciences with its supplement including 38,000 additional words, to a small pocket pronouncing dictionary which sells for about one-tenth of the price. We now have presented to us a product half-way between these two extremes, the object being to provide a modern dictionary for physicians and medical students that would be up to date, contain all the words that are needed, and still be issued in a form convenient to handle, and published at a low price. This has resulted in resetting the type throughout, eliminating much that is old, and in including much that is new. The present edition contains about 71,000 terms and, although it contains 962 pages, weighs only 2½ pounds. It is bound in flexible binding, cloth and leather, with round corners, is only 1¼ inches thick and 8¾ inches high. It is a model of book-making both from the standpoint of the author, the editor, and that of the publishers.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by H. R. M. Landis, M.D. Volume I, Twenty-sixth Series. J. B. Lippincott Company, Philadelphia, 1916.

If we mistake not, this is the first issue of International Clinics under the editorial charge of Dr. Landis, who brings to his new duties enthusiasm, literary ability, and editorial training. The present issue deals with subjects in Therapeutics, Medicine, Neurology, Public Health, Pathology, Gynæcology, and Surgery, and is illustrated with numerous black-and-white and colored plates. The volume closes with a General Review of Medicine for the Year 1915, by Frank A. Craig and John Speese.

ELEMENTARY BACTERIOLOGY AND PROTOZOOLOGY. For the Use of Nurses. By Herbert Fox, M.D. Second Edition, Revised and Enlarged. Freely Illustrated. Lea & Febiger, Philadelphia, 1916.

Dr. Fox is well known as one who is thoroughly qualified to prepare an excellent text-book upon this subject for medical students and practitioners as well as laboratory men. When so easy a task is set him as the preparation of text to give nurses information along these lines, it can readily be imagined that he has found no difficulty in making his text not only useful but accurate. The colored plates are unusually

good, not only in execution but also because they show what the legend underneath them describes. The book is too elementary for the medical man, but can be heartily recommended to those in charge of training schools for nurses who feel that information along these lines should be had by the pupils who are receiving their instruction in hospitals.

THE PRACTICAL MEDICINE SERIES. Volume One, General Medicine. Edited by Frank Billings, M.S., M.D. Series 1916. The Year Book Publishers, Chicago, 1916. Price $1.50.

This small volume of 375 closely printed pages resembles its predecessors in previous years and affords a summarization of medical literature during the past twelve months, prepared under the supervision of a master clinician. The text is in the nature of abstracts rather than in the form of a story. Whenever it is necessary illustrations or plates are inserted.

AUTOPLASTIC BONE SURGERY. By Charles Davison, M.D., and Franklin D. Smith, M.D. Illustrated. Lea & Febiger, Philadelphia and New York, 1916.

This is an excellent combination of laboratory and clinical work, showing a wide knowledge of the literature bearing on the subject and a wise discrimination of the logical deductions to be derived therefrom. There is a brief description of the development, anatomy, and histology of the periosteum, with surgical applications of this knowledge. Chapters follow on the Generation of Bone, The Indications for Autoplastic Bone Surgery; Instruments, Technic, and Transplant; the Autoplastic Repair of Recent and Ununited Fractures, with further applications of the method of living bone-grafts. An excellent book and always convincing, giving a broad review of a subject concerning which no surgeon should be ignorant.

VENEREAL DISEASES. A Manual for Students and Practitioners. By James R. Hayden, M.D., F.A.C.S. Fourth Edition, Thoroughly Revised. Illustrated. Lea & Febiger, Philadelphia and New York, 1916.

This fourth edition of Hayden's book, essentially practical, represents an admirable condensation of existing knowledge upon the subjects covered. It constitutes a handbook on the treatment of gonorrhea and its complications, chancroid and syphilis. It is interesting to note that the specificity of Ducre's bacillus is not admitted and cauterization is not urged as an early treatment. The illustrations are excellent and truly illuminating to the text. There is a good practical discussion of salvarsan as against neosalvarsan. The question of technique is covered well throughout. This is a most serviceable handbook.

CORRESPONDENCE.

LONDON LETTER.

BY J. CHARLTON BRISCOE, M.D.

There does not appear to be any medical news of great interest. It is really remarkable what little discomfort we are suffering from lack of drugs when formerly the supply of most of these came from Germany. Occasionally in these days one is able to pick up interesting bits of information from patients. The other day I had to examine for insurance purposes a manufacturing chemist. I learned from him that we are now making many chemical products which it was not worth our while to make previously. With enhanced prices, this particular individual was very pleased with himself and his results, and further seemed quite confident that he could continue after the war to compete on the old prices. We have recently been asked to avoid using acetone as much as possible. All the acetone is being taken presumably for munition manufacture. This drug has in the last few years been used largely by the surgeons in preliminary purification of the skin, and as a solvent for iodine and other substances.

It is no hardship to return to the old days of turpentine and strong mixture, and I daresay the results will not suffer detriment.

Medical cases being returned from Flanders are much the same as formerly, and call for no comment. One point is, however, constantly being brought to my notice—the frequency with which quiescent tubercle is lighted up in the lungs. Most of the cases show evidence of this by hemoptysis, pleurisy, or continued cough. The disease oftens lights up within a few weeks of joining and before strict training has been entered upon. I do not think it is the fault of the medical examiner of recruits that these cases are accepted. In only one instance have I been able to elicit the fact that the previous infection had been mentioned at the physical examination. All the other men admitted to not having mentioned it—the majority to having concealed the fact of a previous indication of pulmonary disease. The inevitable delay in getting these cases invalided out is unfortunate, and does not militate toward cutting short the recrudescence.

The recruiting authorities are now getting much more particular as to the physical condition of recruits than formerly. Three months ago a private practitioner who wrote a certificate for an obvious defect found that the certificate was disregarded, and the recruit taken. At the present time with a certificate given in a very mild form and pointing out some slight deficiency, the recruit returns with a note on his paper "obviously defective."

The enrolment of the medical profession is gradually proceeding. The position at present is that all the single men up to forty are enrolled, or if not will be so in the next few days. They are in the position of the single men not belonging to the medical profession, and are liable to compulsory service. The married men under forty-one in the medical profession are in a similar position to the married men outside the profession—attestation is not compulsory, and as enrolment is the equivalent of attestation, it is at present optional. The general opinion is that attestation of the married men up to forty will be made compulsory by act of Parliament shortly. In this event the married medico will be advised to enroll. We are expecting some definite statement from the Premier as to the calling up of the married men on his return from France at the end of this month.

The position of the doctor forty-one to forty-five years of age is anomalous. He is over the age of compulsory military service for those outside the medical profession, but is asked to enroll whether married or single. The Director-General of the Medical Services has stated that the military age for medical men does not stop at forty, but extends to forty-five. As far as can be gathered, enrolment has gone fairly well in Scotland and the country districts of England, but not so well in the large towns, and especially in London. As this may be due to a certain amount of want of confidence in the Central Medical War Committee, which is more likely to be felt in London than elsewhere, a further advisory committee formed of Fellows of the Royal Colleges of Physicians and Surgeons has been established, which will act as a consultative body working through the Central Medical War Committee. The first duty of this new body will be to institute a complete survey of the metropolitan hospitals and medical schools to determine the minimum necessities of these institutions, and so obviate the risk of serious depletion of staffs, etc. Following this they will deal with cases affecting these institutions, especially in respect of individual members of the residential and teaching staffs—*i.e.*, as to whether such is indispensable or not, or would suffer excessive hardship of personal nature if required to enter the R. A. M. C.

Any case may be referred to this body by the Central Tribunal under the Military Service Act or by the Central Medical War Committee.

Generally the Central Medical War Committee is accredited with the desire to get all enrolled, but the profession is a little suspicious that when calls do come the selections will not be fairly made. Also

there seems to be no indication of the Committee making any effort to see that the second duty entrusted to them is receiving attention, viz., to arrange that such men as do join shall be employed in the capacity for which they are best fitted.

After the South African war, in the general clearing up and reorganizing, a committee was formed to act as an advisory and consultative body in relation to the Medical Department of the War Office. It consisted of several eminent and practical physicians and surgeons.

This committee has never been called together since war began, although instituted with the express object of meeting such a position as has now arisen. This has given rise to much comment and some speculation.

It is not often that one has the opportunity of seeing and talking to a returned prisoner from Germany. I saw such a man the other day. He had been paralyzed from the waist down, probably by a hemorrhage round the spinal cord. From this he was recovering and was almost completely well again. Apart from his physical condition he was interesting as being willing to tell of his treatment as a prisoner. I have always been inclined to doubt the truth of many of the allegations of maltreatment. In this patient's case I had first-hand evidence. Personally he had certainly suffered from very marked neglect and some cruelty both moral and physical, and related some experiences of his own comrades, which he had witnessed, which clearly show that the cruelties and inhumanities are not understated. Most of these acts took place before the first visit of the American Ambassador and his colleagues. The prisoners were very much better treated thereafter, and are extremely grateful for the improvement which followed. It is interesting to get confirmation of general reports by means of such an interview.

THE PHENOL TREATMENT OF CARBUNCLE AND HEMORRHOIDS.

To the Editors of the THERAPEUTIC GAZETTE.

SIRS: As a practitioner who has treated carbuncles with pure carbolic acid for 27 years and hemorrhoids for 22 years, I feel justified in expressing an opinion based on a large clinical experience concerning the efficiency of this method of curing these two troublesome and at times dangerous conditions. As to the carbuncles when they have already ulcerated there is no need for further operative treatment. When the skin is intact a free crucial incision should be made after a preliminary anesthesia. Through this incision or the ulcerated opening pure carbolic acid should be thoroughly applied, the raw and granulating surfaces having previously been dried. The pure phenol is held in solution by heat. Every part of the ulcer should be saturated. The skin overlying the swelling should also be painted, precautions being taken that the acid does not run over the healthy surfaces. This treatment is repeated daily for five or six days. The results are at times amazing. After five or six days there is found a healthy, healing granulating surface which goes on to rapid cicatrization, far more rapid than that which follows the use of the curette. As for dressing, a little vaselin placed on gauze and held in place by cotton-batting and a bandage is adequate.

The treatment as applied to hemorrhoids is exceedingly simple. The parts are cleansed and painted lightly with pure phenol, a 10-per-cent cocaine or novocaine solution with adrenalin having previously been applied. After being painted the tissues are coated with vaselin, which is also spread over the surrounding skin. Cotton-batting is applied over the parts and held in place by a T-binder.

ROBERT W. SKIPPER.

LOVELADY, TEXAS.